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The inside story of Mike Oldfield's mega-hit

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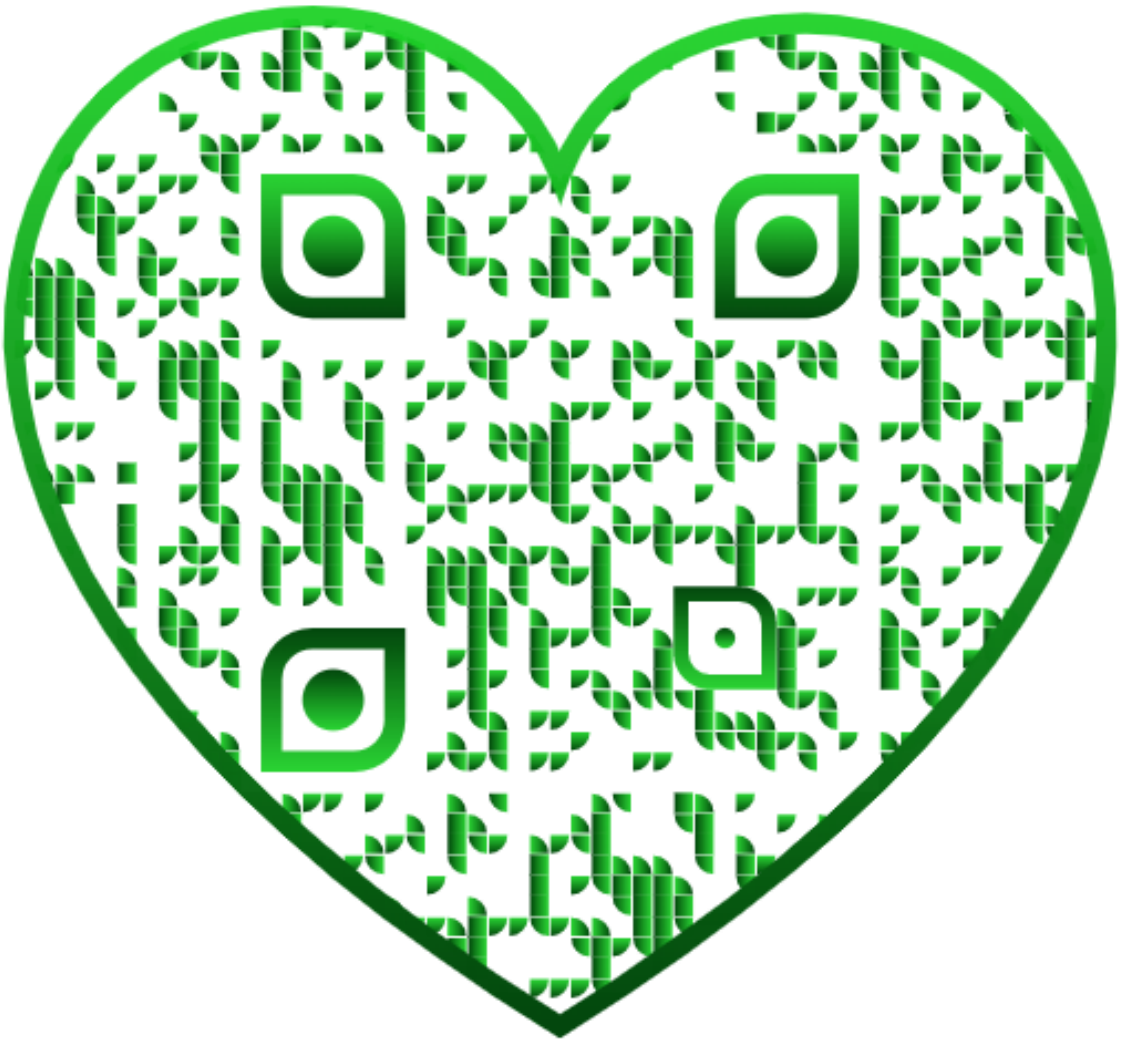

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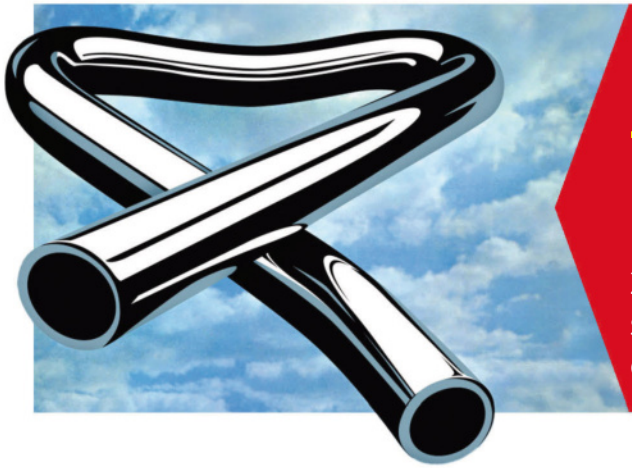

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Bowers & Wilkins

EISA AWARD Best Product 2023-2024
FLOORSTANDING LOUDSPEAKERS
Bowers & Wilkins 703 S3

"The impressive bass, treble detail and cohesive soundstage attest to the engineering skill that's gone into developing the third generation of Bowers & Wilkins' 700 Series."

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The latest Bowers & Wilkins 700 Series is defined by elegance and driven by performance. The range is enabled by technologies first developed for our flagship 800 Series Diamond, and with eight models to choose from, there's a speaker to suit every home.

702 S3
Rosenut

703 S3
Gloss Black

704 S3
Satin White

705 S3
Mocha
with FS-700 S3

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Satin White
with FS-700 S3

707 S3
Gloss Black
with FS-700 S3

HTM71 S3
Mocha

HTM72 S3
Gloss Black

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OUR FULL & UPDATED SOUND+IMAGE BUYING GUIDE RETURNS NEXT ISSUE!

RTFM!

This is the catch-cry of technical helplines the world over. But then why don't they put the FM in the box?

I've been impressed recently by a number of products which have arrived for review with full printed manuals in the box. Hoorah! This fills me with delight. Of course you might think that compared to the other excitements of a new slice of marvellous technology arriving for review this might seem a small thing, and indeed it may not be a green thing, but I very much like having a physical manual to read when I'm being introduced to a product, and even more so when I'm having trouble with something.

You might be surprised that I have been surprised — doesn't everything come with a manual? Heaven's no, not any more. Back in the 1980s and 1990s, yes, of course. But then various things happened to discourage the practice. Big companies became ever more global, wanting to ship a box anywhere the voltage was suitable. That required multilingual manuals that could cover all the multiple markets where that box might end up.

We've all seen the result — huge thick manuals where the English section is up front in the first 24 pages, and the other 200+ pages have the same information and pictures repeated in dozens of other languages. Apart from the joys of discovering, as we did recently, that when shopping for a wireless streaming adapter in Poland you should learn to ask for a *bezprzewodowy odtwarcz sieciowy*, printing dozens of repeat manuals was clearly wasteful at a time we were all starting to think about such things, and also heavy, in a box which for shipping economy should be kept as light as possible.

Such concerns initiated our least favourite manual genre of all — the pictorial guide. Instead of loads of languages, they use no languages at all, offering instructions entirely of diagrams, so they can be understood by everybody in the world. In our experience, the result is invariably that they can be understood by *nobody* in the world, and where words have been added (in several languages), those words go extremely small, so the manual has pictures that don't make sense and words you can't read. It would make us laugh if we didn't envisage some poor bugger sitting on the floor trying to work out why their new Bluetooth speaker doesn't connect. Every product should have a full properly-written manual.

Of course, as the world went increasingly digital, we started getting CD manuals in the box, so you could load the CD into a computer and read the full manual on screen. This wasn't universally popular or convenient, but it allowed updates rather more easily than reprinting the traditional manual, and avoided the past corrections of shoving little addendum slips into the manual.

CD manuals are a dead tactic these days, of course, with ever fewer computers having CD drives. There is the pricier option of including a manual on a USB stick (too easily mislaid or reused). But of course nearly all manufacturers now put the full manual online, where anyone can have a squizz through even if you don't have the product itself, very handy when comparing models. And any changes can be included with no problems at all, keeping the online manual always up to date.

Some advanced-thinking companies have gone further still, with no 'PDF' of a printed manual but rather an online smart manual, like a mini website, where you can input your question, and sometimes even get a useful answer back. I rather prefer a well-indexed PDF manual to these less easily navigated web manuals, but I dare say the smart manuals will soon be fronted by an AI chatbot to make them more efficient, if partially hallucinatory. What fun we'll all have.

All these variants of the full manual and the barriers to including it in the box have culminated in that insidious modern mini manual, the Quick Start Guide. In the old days you might get a Quick Start Guide plus the manual, both in the box, the former to get you plugged up and playing quickly, the latter to get into the more complicated features and for problem-solving in the event of any crises.

These days you tend to get just the Quick Start Guide. For multinational products these may combine the worst of everything — very brief pictographic set-up instructions all really small and then repeated in 15 other languages on a vast sheet of paper that has been folded inwards 12 times by an origami master and squeezed into a plastic wrapper.

Of course with the advent of set-up via app, the Quick Start Guides these days can be as brief as "Turn it on. Download this app. Follow the instructions on the app." Which is great, when it works. Not so useful if it doesn't (and it sometimes doesn't).

It's often cited as being 'greener' to have minimal instructions in the box and everything else online. But you'll note there'll be a bigger leaflet in every box, fully printed and legible, which has nothing useful to the user but which contains all the safety information legally required to cover the company's corporate arse should you plug it into the wrong socket in Sweden in the rain, or something. That's worth printing, apparently, but your manual isn't.

There's one more reason for not including the manual, which is that every manufacturer knows that *hardly anyone actually reads the instruction manual anyway*. Talk to anyone who's worked on a tech helpline, and they'll tell you that of the problems left unsolved by turning it off and on again, the vast majority require only a perusal of the manual to fix. Hence their catchcry of '*RTFM!*' — if not when initially setting up, at least when something proves too complicated for easy diagnosis and fixing.

Given that we all know this, I am of the belief that products should therefore be designed to at least get up and running without the need to read any instructions at all. I do this myself when trying a product — can I find my way through unguided? Is it intuitive? Or are the menus easy enough to get the thing online and playing without assistance?

If the answers are yes, the product gets bonus points. If there's a real manual in the box, there'll be more bonus points. If I have to get the magnifying glass out and try to understand a load of diagrams with insufficient words alongside, well, then you'll be reading about it in the review, and rather than RTFM, we'll be asking WITFM?

Cheers! **Jez Ford, Editor**

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The Hi-Fi Headlines

LEN WALLIS AUDIO

NEWSLETTER NO.267

Stax Marks 85 Years with Exclusive Electrostatic Experience

Stax, a name synonymous with top-tier electrostatic headphone technology, celebrates its 85th anniversary this year. Established in Japan in 1938, the company has ruled the world of electrostatic headphones, cultivating an iconic design that's become a touchstone in audiophile circles.

Stax is releasing a limited-edition bundle to commemorate this milestone that beautifully combines heritage with innovation. The bundle includes the SR-003MKII Earspeakers, a rarity in the market known for their push-pull electrostatic design, and the SRM-D10 DAC/amp, the world's first battery-powered, portable electrostatic driver.

While traditional Stax products are often associated with sit-down listening sessions, this unique pairing emphasizes portability. The SR-003MKII is connected via a 5-pin Stax PRO Bias cord, providing the perfect on-the-go solution for those seeking superior audio quality without compromising mobility.

Accompanying this special bundle is a limited number of exclusive Stax jumpers and pins, adding an extra layer of exclusivity to the offer. Stax has also published a commemorative e-book on their website, filled with firsthand accounts from the company's rich history.

With only a handful of these 85th-anniversary bundles available in Australia at the standard retail price of $2,250 RRP (including the bonus items), prospective buyers are urged to act quickly. This is more than a product offering; it's a celebration of an illustrious legacy in sound, design, and technological mastery.

Yamaha's R-N800A Stereo Network Receiver: A Symphony of Design and Technology

Designed to immerse listeners in a comprehensive music experience, the R-N800A introduces Yamaha's original YPAO™ technology, offering a sound field correction that turns your living room into a professional audio listening room.

The R-N800A's design reproduces the artist's position, the instrument's delicate nuances, and even the atmosphere of the performance space, creating an incredibly realistic soundstage. Through Yamaha's Parametric Room Acoustic Optimizer (YPAO™), environmental factors that affect the sonic signature of a room are automatically calibrated, allowing for high-precision equalization up to 192 kHz/64-bit audio resolution.

Incorporating Yamaha's legendary Hi-Fi design concept ToP-ART (Total Purity Audio Reproduction Technology), the R-N800A's structure maintains the integrity of the audio with a symmetrical left/right circuit layout, a low-vibration chassis, and a unique resin frame that blocks unnecessary vibrations.

Yamaha's pursuit of dynamics and tonal balance in music is evident in the R-N800A, allowing listeners to explore deep emotions within musical worlds. The receiver draws out the sonic merits of high-resolution sound sources by utilizing the renowned SABRE ES9080Q 384 kHz/32-bit DAC (from ESS Technology).

Whether it's vinyl records, TV, or high-resolution streaming services such as Amazon Music HD and Spotify, the R-N800A offers comprehensive connections. Equipped with Yamaha's original MusicCast network system and compatible with Airplay 2, this network receiver promises a full-fledged musical experience from your smartphone.

From anti-resonance feet to the DAB+ Tuner, the R-N800A's innovative features ensure a relentless fidelity in sound reproduction, paving the way for an unforgettable auditory journey that lets you fully feel the rhythm and dynamics of music right in the comfort of your home.

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Image courtesy of Sony Pictures Entertainment, Spider-Man™: Homecoming.

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Yamaha brings 'True X'

WIRELESS REARS WITH A LIFE OF THEIR OWN

In the days before soundbars were much of a thing, Yamaha had a range of high-end models that would beam sound around the room using large arrays of small drivers. They were very effective, yet in recent years Yamaha has been scaling down its soundbars to far lower and more compact models.

Now it seems the Japanese company is raising its bars to greater things once again, with the announcement of 'True X', which it describes as a 'True Wireless Surround' system, and which brings Dolby Atmos performance to a Yamaha bar.

Some markets are getting two soundbars; Yamaha Music Australia is announcing only the higher **SR-X50A soundbar and wireless subwoofer combo**, priced together at $1299.

The 101cm-long soundbar includes two upward-firing drivers to deliver the height component of Dolby Atmos soundtracks, together with forward-firing stereo from full-range racetrack-shaped drivers supported by two three-inch woofers on the bar, plus the wireless subwoofer's 160mm (6.25-inch) driver which Yamaha says extends down to 35Hz, for the truly deep stuff.

True surround

But the X-factor in Yamaha's True X system comes when you add two of Yamaha's little **WS-X1A wireless speakers** (pictured left, and benched above), priced at $229 each.

These are neat little speakers 11cm high with a 9cm square footprint and attractively trimmed, each equipped with a single 5.5cm driver and twin passive radiators.

Select their 'Solo' mode, and each WS-X1A can be used as a standalone mono Bluetooth speaker anywhere in the home — and indeed beyond, thanks to their IP67 dust and water resistance rating, and because they can play on their own battery power, as well as being plugged into the mains via any USB-C connector or by keeping the speaker on one of Yamaha's little CC-T1A charging bases, sold separately at $39 each.

But pop them at the back of your TV room and they will wirelessly link with the soundbar to deliver discrete left and right surround channels, turning the True X into a Dolby Atmos 4.1.2 system (front stereo and height, rear surround, plus subwoofer). No cables required, of course, and Yamaha's Sound Bar Controller app guides you through the process, while offering various sound modes and a 'Clear Voice' function to tweak the performance for different content types and usage scenarios.

While the audio signal from your TV can plug into the bar via HDMI ARC or optical, the bar can also be used for online music streaming services including Spotify Connect, Tidal Connect and Amazon Music. There's no full MusicCast here, but Bluetooth is onboard, while Apple users can stream any music to the system via AirPlay 2.

A built-in microphone in the soundbar also enables direct voice control with the Amazon Alexa voice assistant app.

We look forward to seeing how well Yamaha's True X performs in its various permutations, with Australia ranging the black and carbon grey colourways, but not the lighter grey option available in some markets. We also note that this may mark the start of a wider 'True X' ecosystem: Yamaha has trademarked 'True X' to also cover AV receivers and amplifiers, plus their software and remote controls. More: ***au.yamaha.com***

Bowers & Wilkins 600 Series 3

It's the lowliest of Bowers & Wilkins loudspeaker ranges, but also the one which will introduce many listeners to the UK-based brand, so the arrival of a full **new 600 Series** is a significant event.

The most significant technical advance over the previous Series 2 is the introduction of titanium domes for the tweeters, replacing the previous aluminium. A light but rigid 25-micron main dome is braced by a second 30-micron titanium ring, housed in a longer tube-loading system inspired by the ones recently introduced in the new 700 S3 series. The longer tube loading system reduces the resonant frequency behind the dome, says Bowers & Wilkins, and leads to a more open sound that is less impacted by the cabinet.

The front grille of the tweeters also use the very latest open-hexagon design grilles taken directly from the recently-introduced 800 Series Signature.

The silver Continuum cones (the company still won't say what they're made of) are used on the small models as mid/bass units, and as midrange drivers on the floorstander 603 S3, where the bass drivers are paper cones, and all upgraded with more powerful motor assemblies from the 700 S3 series. The tweeters and main drive units are also notably closer together, using intersecting trim rings to improve integration and stereo imaging, while the enclosures have been given improved bracing and an improved bass port. Each model is available in a choice of four finishes: White, Black, Oak or Red Cherry.

Pricing in Australia is as follows:

- 603 S3 floorstanders $3499/pr;
- 606 S3 standmounts $1499/pr;
- 607 S3 standmounts $1149/pr;
- HTM6 S3 centre $1149;
- FS-600 S3 floor stands $499/pair.

Three subwoofers are also available.

More info: ***bowerswilkins.com***

Apple patent foresees extra-aural speaker pairs

Apple's over-ear AirPods Max were Sound+Image award-winners in 2022, and aside from their wonderfully-involving sound quality, one of our favourite features is their ambient mode. While most headphones just pipe through external sounds to keep you aware, the AirPods deliver external sounds in stereo, almost as if your headphones are open to the world.

Now a patent has surfaced, noted first by the ever-vigilant 'Patently Apple' website, relating to a headphone or headset design which does something seemingly strange. European patent EP4218257 and World Patent WO2022067018A1 describe a head-worn device that includes a housing and two extra-aural speaker drivers, where both are arranged to project sound away and into an ambient environment. So these are headphones which deliberately produce sound *outside* the headphones.

Since that might disturb those nearby, the patent also describes a system to monitor external conditions and potentially the positions of other people so as to auto-switch the two extra-aural speakers from 'public mode' to 'private mode' by putting the two drivers out of phase.

But what's it for? Our best guess is that such paired speakers might generate positional information cues that could supplement stereo sound, especially for the likes of smart glasses and AR headsets — perhaps like the company's Vision Pro, or perhaps for something like the Apple Glasses rumoured to be on the way...

Sennheiser Ambeo: and then there were three

When we reviewed the Sennheiser Ambeo Plus soundbar three issues ago, we noted that the soundbar was really too large to need such a big wireless subwoofer. "*It's like this product is caught between the original bar-only pride of the larger Max, and some product yet to come — a smaller bar, as a more sensible partner for the Ambeo Sub*".

It has proven to be so. News of a new 'Ambeo Mini' leaked onto the internet last month on a number of retail sites, showing the third bar in the Ambeo soundbar series to be smaller still at 67cm wide and 11cm high, with an HDMI ARC connection round the back, though bravely no optical or analogue fallback options as on the larger bars. There is a USB-A slot, and Wi-Fi networking to deliver music via Spotify Connect, Tidal Connect, Apple AirPlay 2 or Google Chromecast, as well as Bluetooth. The top surface offers touch controls for volume, microphone muting (it has Alexa built-in), Bluetooth, the Ambeo button, and what looks to be a source selection button. The microphones also link to the unit's automatic room calibration. But there are no speaker grilles on the top, indicating no native height channels on this model, so while it supports Dolby Atmos, DTS:X and MPEG-H, any attempt at either surround or height will be virtualised. That 'Ambeo' button, as on the 'Plus' model, most likely uses 'upHear', an Immersive Audio Virtualization technology licensed by Fraunhofer IIS with device-specific tuning. UpHear upmixes any number of channels to all the bar's drivers, and Fraunhofer engineers recently confirmed to us that upHear also includes a spatial audio engine. The Mini will sell at $1300; the Sub is $1120. More: ***sennheiser-hearing.com***

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RX-A6A 9.2 Channels
RX-A8A 11.2 Channels

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*With online registration

JEANLUCADOBESTOCK

Paris match

A new brand is coming to Australia, although **Advance Paris** is no newbie: it has a 25-year legacy in its home market, formerly as Advance Acoustic, and has been transformed in recent years by the arrival of a new team. Advance Paris is based in Fontainebleau (pictured), and will come to Australia through Synergy Audio Visual, which sees the brand as an ideal replacement for Cambridge Audio, distribution of which is now moving to BusiSoft AV.

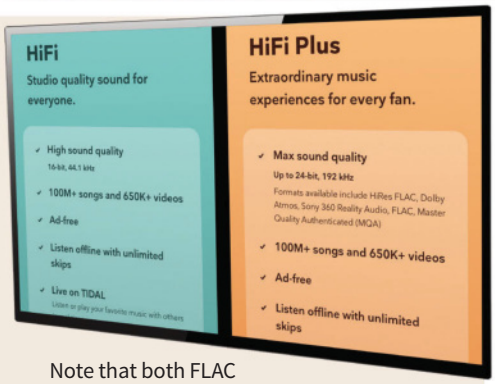
The Advance Paris catalogue is extensive, and does indeed include streamers and all-in-one smart amps which look to exceed those of Cambridge in terms of value and features. The $1699 X-Stream 9 above, for example, has not only a full streaming module for network streaming and access to Spotify, Tidal, Qobuz, Amazon, Deezer and internet radio, it also brings FM/DAB+ radio, a CD player, AirPlay and Bluetooth, plus a full set of digital inputs, including USB-B.

The MyConnect smart amps (pictured right) come with the company's hallmark blue VU meters enlivening the front panel, while the back panels reveal the extensive connectivity — the $3799 MyConnect 150 has all the aforementioned streaming abilities plus a CD player, FM/DAB+ radio, seven analogue inputs and a phono stage not only with switchable mm/mc but with adjustable loading, then seven digital inputs including USB-B, plus two configurable headphone outputs — and three sets of speaker outputs for its 130W per channel into 8 ohms (and a valve-based preamplifier stage). We can't wait to play! More info: ***www.synergyaudio.com***

Tidal FLAC: latest info

Tidal CEO Jesse Dorogusker announced in April that Tidal was "choosing FLAC as our preferred format for high-resolution audio" over its existing MQA-powered Masters. With MQA Ltd now in administration (though with some planned renaissance around the new SCL6 codec), it is unlikely that new tracks will appear in MQA, and also unclear how long existing MQA tracks will remain available.

Now that the FLAC files are appearing on Tidal, what type of file will you receive? We gather the playback hierarchy through applications which support FLAC will be *HiRes FLAC > MQA > standard FLAC > ACC 9*. But Tidal Connect does not yet support FLAC, so this should still play MQA-encoded files. Check your DAC display to be sure!



Note that both FLAC and MQA files are only available on Tidal's top 'HiFi Plus' tier, currently $23.99 a month, which also gives access to music in Atmos and Sony 360RA. The 'HiFi' plan at $12.99 delivers ad-free streaming at full CD-quality. More info: **tidal.com**

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Hegel's winning duo

Two new arrivals from Norway's Hegel have been heralded by EISA Awards (see full winners' list this issue), as both the company's new Viking CD player and the H600 reference integrated amplifier have been recognised by EISA's global Hi-Fi Experts Group (which includes our sister magazine *Australian Hi-Fi*).

Hegel began in 1988 at the Technical University in Trondheim, Norway, and in recent years has grown a reputation as powerful as the grunt behind the new reference amplifier, which replaces the also-awarded and highly regarded H590 released five years ago.

"We had never made an integrated amplifier at this level before, and we were slightly apprehensive about the reaction," says Hegel. Presumably now rather more confident of the reception for the H600, the company has invested in a a new chassis design, a new DAC, an improved amplifier section, and what it calls "a vastly superior streaming engine." A dual-mono design throughout, the new H600 is rated to deliver 303W into 8 ohms, with a damping factor of 4000, and the ability to drive down to 2 ohms. There are two each of balanced and unbalanced analogue inputs (though no phono stage), plus three optical, BNC and RCA coaxial digital and USB-B to 32-bit/384kHz or DSD256 (DoP), in addition to Spotify and Tidal Connect, Roon Ready (currently pending), UPnP, and AirPlay 2.

The H600's DAC is a bit-perfect design, offering pure audio fidelity without any resampling or upsampling, and with a large, dedicated power supply that ensures stable performance. Price is $18,995.

The new Viking CD player, meanwhile, is specifically a CD player optimised for Red Book CDs — again there's no upsampling at all, and no bonus features like digital inputs or networking functions here, just your choice of outputs from RCA line-level, balanced XLR or BNC coaxial digital. RRP for the Viking CD Player will be $7995. More information: ***www.advanceaudio.com.au***

Rotel updates Ishiwata's final performance

Rotel has thoroughly updated its A10 and A11 integrated amplifiers and CD11 player to give them second-generation status as the A10MKII, A11MKII and CD11MKII.

The original A11 and CD11 were labelled 'Tribute' products as they were the final components into which audio maestro Ken Ishiwata had design input, after his ejection from Marantz and before his death a year later, upon which his friend and fellow audio designer Karl-Heinz Fink stepped in to complete the enhanced Rotel designs.

So the aim is to remain true to his design while enhancing performance still further via upgrades to 'critical components' and circuit design. The CD11MKII gets component upgrades in the digital circuits surrounding its Texas Instruments PCM5102A 32-bit/384kHz DAC, while Rotel says the smooth-action CD tray mechanism, LCD display and intuitive front panel controls remain in place to ensure easy operation. The CD11MKII also includes a coaxial output allowing the unit to be used as a CD transport.

The A11MKII has both analogue and digital inputs, compared to the A10's analogue-only offering. Both supposedly feature more than 65 component upgrades over the original in in the power and amplifier gain stages of their Class-AB 50W per-channel performance, while the new A11MKII also gets a further 22 upgrades in the digital circuitry, including the same TI PCM5102A DAC used in the CD player.

All units are available in black or silver, with pricing in Australia is $879 for the A10MKII amplifier, $1099 for the A11MKII amplifier, and $749 for the CD11MKII CD player. More info: ***www.interdyn.com.au***

Stax hits 85: portable package & a free e-book

Artisans in audio are becoming a dying breed, according to Japan-based Stax, famed for its electrostatic 'earspeakers'. Stax is currently celebrating the 85th anniversary of Naotake Hayashi founding a recording company in 1938, and also the 60th anniversary of that company becoming Stax in 1963.

"In an era where mass-produced products dominate the market, the art of handcrafting audio equipment is getting lost," says the company. "That is why we believe it is more important than ever to celebrate brands like Stax that are keeping the tradition alive."

To that end it has released a commemorative package comprising the company's thoroughly up-to-date SRM-D10 portable drive unit and SR-003mk2 in-ear electrostatic speakers (pictured), in a special limited edition with an 85th anniversary jumper and commemorative pin. Price for the set is $2250, a saving of $100 even without the bonus extras. More info: ***www.audiomarketing.com.au***

For the anniversary Stax has also made a short 'e-book' (pages above) about its founder, the company history, and how it makes its earspeakers today. It's well worth a read — use this QR code to access the e-book.

Yamaha brings smart amps for less $$$

Yamaha's R-N2000A smart stereo amplifier has been on an awards sweep recently — a Sound+Image award in April, now an EISA award from global editors, recognising the skill with which new-age smarts have been secreted with some subtlety within an amplifier coming from an all-analogue heritage.

Now there are two more additions to this genre at at lower-level — the $2299 R-N1000A and $1699 R-N800A streaming amplifiers, also new loudspeakers as shown at Munich this year, the NS-800A and NS-600A bookshelf speakers, which might partner either of the amplifiers to deliver a compact streaming hi-fi set-up.

Despite being below half the price of the $4999 R-N2000A, the two lower network receivers adhere to the company's strict engineering template, defined by meticulously symmetrical left/right circuit layouts, the shortest viable signal paths, and a low-vibration chassis. The R-N1000A goes one step further with an enclosure strengthened by a double-bottom chassis, reinforced by a thick iron damping plate. Throw in high-quality audio components, including custom-made power transformers and block capacitors, and you can see where both models get their heritage from.

Both receivers feature network streaming integrated by way of Yamaha's MusicCast streaming platform, which accommodates DLNA streaming as well as access to streaming services including Spotify Connect and Tidal Connect; there's also AirPlay 2, along with the usual analogue and digital inputs (R-N1000A back panel shown below), the latter using a DAC section incorporating ESS Technology's Sabre ES9080Q DAC, which permits up to 32-bit/384kHz for PCM file support through USB-B from computer, also native DSD to 11.2MHz. Yamaha's audio calibration technology, YPAO, is also onboard both amplifiers.

The R-N1000A adds an HDMI socket over its even more affordable sibling, with further points of differentiation being its use of three Amtrans resistors (up from two in the R-N800A) for supposedly improved expression and scale, plus higher-grade coupling capacitors by Toshin Kogyo, and speaker terminals cut from pure brass.

Both are available now; details from ***au.yamaha.com***

Maintaining Momentum

As **Sennheiser's Momentum 4 headphones** hit one year old, the company's Swiss-owned consumer division is refreshing the style of these highly-regarded over-ear noise-cancellers with two new editions. In addition to the existing two finishes in matte black/charcoal and white/stone, the Momentum 4s will now be available in an inky 'Denim' colorway (just a colour reference, no faded-jean fabric or Levi rivets), while our preference might be for the new "Black Copper' (far right) which references the HD 660S2 audiophile headphones reviewed last issue. All tech specs are unchanged, though pricing is odd: the new colours have an RRP of $640, compared with $580 RRP for the black or white, though Sennheiser itself sells those for $499. ***sennheiser-hearing.com***

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Limited-edition Jony Ive Linn Sondek

Followers of the Linn Sondek LP12 will know that this classic turntable, now a full 50 years old, has evolved over the decades at a glacial pace, precisely because the design was revered so early on. Once beyond its Ariston origins, the LP12 cemented its status at the front of the "source-first" movement of the 1970s, proferring the then-heretical notion that we should spend more money on our sources and less on our speakers, because 'garbage in equals garbage out'. Linn and its leader Ivor Tiefenbrun forcefully propounded this hi-fi philosophy, along with Naim's championing of the then equally-unregarded art of amplification, until the rest of the hi-fi world fell into line behind these notions that we take for granted today.

Linn has always offered the ability to gradually upgrade LP12s piece by piece into something better. But even the dramatically-named major upgrades over the years (the Nirvana kit of 1981, the Valhalla and Lingo power supplies, the improved Cirkis bearing and stronger sub-chassis in 1991) did little to change the overall appearance of the LP12.

So what the heck is going on here? This is the **Sondek LP12-50 Anniversary**. It is set to ship between now and March in a limited batch of 250 units. In addition to the more traditional natural wood finish, it comes in a white option, as pictured. And the Australian price is, wait for it, $90,000: more than double the price of Linn's Klimax LP12, and 15 times the roughly $6k tag for the Linn Majik LP12.

But for your money you are promised "*the best vinyl playback performance Linn has ever achieved.*" From Linn, the key upgrade is an all-new 'Bedrok' plinth technology which uses pressure-bonded layers of beech to form an ultra-dense wood with negligible resonance and superior isolation for the tonearm.

But what has the hi-fi world in a spin is the input that has been made by 'LoveFrom', a collective of designers, architects, musicians, filmmakers, engineers and artists founded in 2019 by none other than the UK's Sir Jony Ive.

If you haven't previously come across Jony Ive, take a look around any Apple-orientated home and you'll find some of his work. As chief design officer of Apple Inc. from 1997 until 2019 he had a vital role in the designs

▲► The 'LoveFrom' collective of former Apple Chief Design Officer Sir Jony Ive has contributed new precision-machined hinges and power/speed control button.

of the iMac, iPod, iPhone, iPad, and MacBook. And Jony Ive, it turns out, has long been an admirer of Linn.

"My respect and admiration for Linn began in my early 20s when I visited the Linn factory in Glasgow, designed by my late friend Richard Rogers," says Ive, pictured right with Gilad Tiefenbrun, Linn CEO and son of Ivor. "I've always had a deep love of music, and have had the wonderful opportunity and privilege to design a number of different music players and headphones — most notably the multiple generations of iPods while I led design at Apple. I have a particular affection for the mechanical-wheel iPod, with the hand polished and laser etched stainless steel back with white headphones. I saw in Linn an inspiring obsession with musical fidelity and beautifully made products."

"I have been a fan of the Sondek LP12 for decades, and was always fascinated by the ability to update and upgrade the product; I love the idea that after years of ownership you can enjoy a product that's actually better than the one you bought years before."

Changes with LoveFrom

The LP12-50 Anniversary marks Ive's first non-Apple hardware project, as well as Linn's first LP12 redesign of this kind. In a blog post about the collaboration, Linn CEO Gilad Tiefenbrun writes how he initially dismissed a LinkedIn invitation to meet with Ive as spam, before getting the niggling feeling that it could be authentic and he should follow up.

As we know now, the message wasn't junk. Ive wanted to purchase a couple of Linn products, and the conversation over FaceTime led to his new design firm, LoveFrom, expressing a desire to get involved with the LP12-50 project.

Sir Ives says the changes suggested by LoveFrom are, "I hope, respectful and gentle in nature." Their design improvements focused first on enhancements to the plastic hinges and the speed control/power switch.

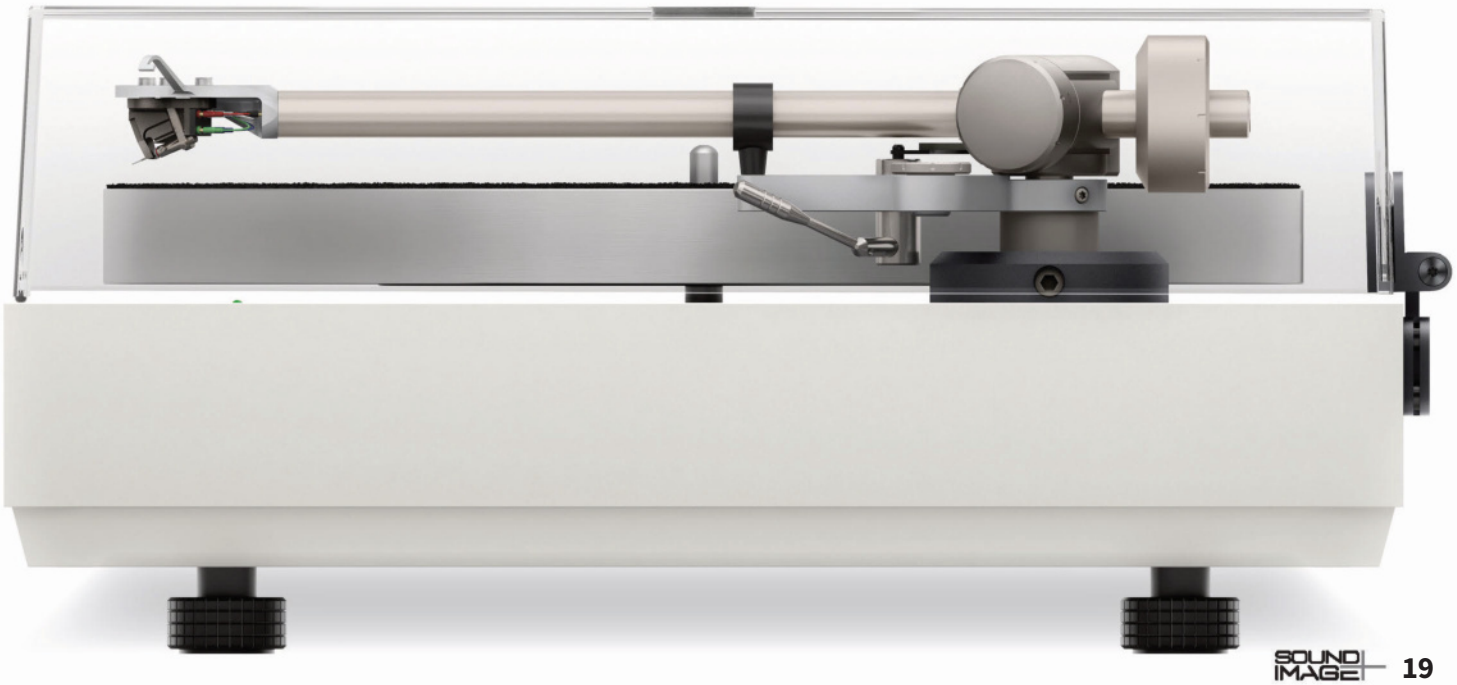
"If you've ever had a real estate agent look around your house, you'll be familiar with how I felt," writes Tiefenbrun. "At Linn, we care about sound quality above all else and so, whilst we are aware that there is indeed room for improvement in these areas, we haven't found the time in recent years to make them a priority over our long list of potential sonic improvements."

That led to the new precision-machined metal hinges that Tiefenbrun says will make the dust cover ultra-responsive to the user. Meanwhile the new circular power switches machined from solid aluminium also led to a new curved-edged top plate and arm board to mirror the new power switch's curves. There's also a new lid badge. The overall effect, especially in the white edition, is to make the LP12 look, well, rather more Apple-y. It looks to be an all-round successful collaboration, final RRP notwithstanding, and is a reminder that good design can enhance appearance and ease of use as much as engineering can ramp up the sound quality. Also that the engagement of the designers is crucial, as we've seen plenty of 'name designers' employed on hi-fi projects that might have ended up being better without their help, especially when products have designed from a designer's concept 'look', rather than starting with a performance-optimised build with subsequent design added to enhance aesthetics and operation — as has clearly been the path for the longstanding Sondek LP12 turntable.

Last words, then, to Gilad Tiefenbrun.

"My father Ivor's Sondek LP12 turntable revolutionised the hi-fi industry. It employed precision engineering to extract more music from the grooves of a vinyl record and, in doing so, improved the sound of any hi-fi system, regardless of the amplifiers or loud-speakers. Our upcoming 50th-anniversary year presented the perfect opportunity to create a special edition of Ivor's turntable, which we have named Sondek LP12-50. Not only does it produce the best vinyl playback performance we've ever achieved, but it is also a great joy to behold and to interact with. Sondek LP12-50 features our latest technological innovations, alongside the immediately recognisable and iconic design language of Sir Jony and his team, applied in key visual and tactile interfaces."

More info from: ***advanceaudio.com.au***



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Leica looks at Laser TV through a new lens

A home theatre projector might seem a side-step for Leica Camera AG, the global manufacturer of high-end cameras and lenses, fine mechanical and medical instruments and high-tech devices of the highest standards in imaging. But perhaps not so much — home entertainment has long relied on high-quality lenses, and far earlier than video projection. Many was the 1960s home where a big screen was illuminated by a stylish Leica/Leitz Pradovit slide projector, the height of home entertainment with its cabled remote control which could shuttle the 35mm slides forwards and backwards.

So in some ways, **the Leica Cine 1** sees the German company reclaiming territory long ceded first to Japanese home entertainment companies, then Korean, now Chinese. And it is with one of the current Chinese technology leaders that Leica has partnered for its return. As you might guess from Leica's initial use of the term 'Laser TV' here (it later settled on 'Cinema TV'), the Cine 1 is made in partnership with Hisense, which has found success with this complete entertainment concept — an ultra-short-throw projector which includes both a video streaming module and TV tuners inside, and has a built-in sound system. You can plug in sources, but the Cine 1 provides everything in one: a deliberate alternative to a television. >>

The convenience of a projector placed close to the wall is undeniable, but the technical challenge of delivering an even spread of light and accurate imaging from such a position is considerable. Chief among the challenges is the quality of the lenses, both within the internal imaging and especially at the exit lens, with its unenviable task of delivering a rectangular image thrown up from below.

The potential advantages of having Leica-standard glass are considerable, and here the sophisticated Leica Summicron lens uses four aspherical lenses in combination, each manufactured according to Leica standards, and precisely matched to the image size. Leica's own image processing is also employed — Leica Image Optimization (LIO). This brings 'special algorithms' to bear with the promise of "*particularly natural colour rendition, richly detailed colour gradation and an outstanding contrast ratio*".

Behind the glass is triple RGB laser technology and DLP 4K imaging with Dolby Vision compatibility and able to deliver 3000 ANSI lumens, says Leica. It uses a 0.47-inch DLP micromirror device with the XPR system of flipping its 1920 × 1080 mirrors four times per frame to produce Ultra HD's 3940 × 2160.

The smart interface is VIDAA, as used in Hisense's Laser TVs and televisions, and includes voice control, direct access to streaming platforms and terrestrial catch-up apps (Freeview). The TV tuner is triple-headed, and there's Apple AirPlay available too.

Another undeniable bonus with Leica's take on projection is the gorgeous cabinet, its timeless look seeming entirely 21st century while still triggering thoughts of those Pradovits of the 1960s.

Indeed it seems Leica sees the Cine 1 as representing more than its return to home entertainment: it notes how this 'Cinema TV' also completes a movie-making circle for the company. It was back in 1914 when Oskar Barnack, chief developer at Leitz (as Leica was officially called until 1986) came up with the idea of using 35mm cinema film as a standard for still photography, doubling the single-frame format from 18×24 mm to 24×36 mm. At the other end of history, Leitz high-end cine lenses are still manufactured in Wetzlar, Germany today, "*designed to accompany cinematographers in the masterful creation of their visions around the world*".

So who better to put the lenses in the projectors that bring those visions back off the recording medium? As Leica puts it, its business is "moving people through imagery," and the Cine 1 allows it for the first time to deliver moving images to the living room.

The Cine 1 can do that in two sizes: 100-inch (price $13,999) or 120-inch ($14,999). For best possible results, Leica recommends high-contrast screens with ambient light rejection; these don't come included, but a range of options, including Leica's own fixed screens, will be available from Leica Stores and authorised dealers.

We hope to get a review under way shortly of this potentially remarkable example of the ultra-short-throw breed: watch this space! Meanwhile find more information via: ***leica-camera.com***

METAXES & SINS STRIKES AGAIN

Here's a new aural sculpture from the always extraordinary Metaxas & Sins: this one is an "Ethereal Electrostatic Earspeaker Amplifier" — note the reference to 'earspeakers', the name Stax gives to its headphones, as this is an amplifier designed for electrostatics only, providing a bias voltage of 580V, the standard for STAX and most other electrostatic headphones. It uses two mono ultra-low-noise high-voltage purely discrete and completely balanced amplifiers; an optional DAC can be added, or still to come, a full digital music streamer. The full mannequin version can, of course, be used to store your headphones when not in use.

While Metaxas & Sins BV is based in Amsterdam, Kostas Metaxas himself is the very archetype of multi-cultural Australia — an Australian of Greek parents with a German education, US heroes, an Ethiopian muse and originally a French 'patron'. For sales and pricing enquiries, contact the company direct through **metaxas.com**

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Wandla enjoys a fully balanced signal path, respecting your music. With our sleek visuals, we created a sense of aerodynamics for the living room. By adding our unique set of digital filters, we allowed end users to fine-tune their DACs to their specific sonic needs. We called this DDF, short for dynamic digital filtering. WANDLA is the best your money can buy, representing the most musical and tailormade DAC for today and tomorrow. Compact and blushingly musical. From CD to streaming, from mp3 to super hi-res, from classical to hard rock. WANDLA can be upgraded with HYPSOS and is the perfect companion for OOR. Award winning EISA best DAC 2023.

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EISA Awards 2023/2024

For more than 40 years, the annual EISA Awards have delivered the combined judgement of magazine editors around the world, a global perspective on the best-value and highest-performing consumer electronics you can buy. *Sound+Image* placed its votes; here are the winners...

Sound+Image and *Australian Hi-Fi* are EISA's representatives for Home Theatre and Hi-Fi respectively here in Australia, part of the Expert Imaging & Sound Association which for 41 years has pooled the editorial experience of 58 special interest magazines and websites across 29 countries.

Judging includes a long series of online presentations and global seminars between EISA editors, manufacturers and product designers, followed by judging sessions between EISA's various Expert Groups to nut out the final winners, representing the world's best.

There'll be an exciting finale to it all this year, with a real rather than virtual Awards Gala for the first time since 2019, this year at Ascot in the UK. But we are able to bring you all the winners right here, with the full deets and citations for our own particular AV categories.

Presentations and judging for 2023-2024 took place online (above). The Awards Gala (2019 event in Berlin above left) returns for 2023!

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EISA AWARD Best Product 2023-2024

MINI LED TV

Hisense 65U8KQ

Hisense's 65U8KQ leverages the latest advancements in Mini LED technology and Quantum Dot panel design to deliver a stunning picture performance. Dividing its Mini LED backlight into 1080 zones, with precise local dimming, yields an enhanced contrast with deep blacks and bright whites, complemented by rich colours. To further optimise its visual impact, the TV supports Dolby Vision IQ and HDR10+, as well as Filmmaker Mode for movie playback as the director intended — and when it comes to sound, the built-in Dolby Atmos 2.1.2 speaker system is equally cinematic. Add in the 65U8KQ's gamer-friendly connections, VIDAA U7 smart system, and sleek, modern design, and you have a TV with real appeal.

EISA AWARD Best Product 2023-2024

HOME THEATRE MINI LED TV

TCL 65C845

TCL continues to extend the performance of Mini LED technology, the C845 series this year doubling the zones and upgrading the LEDs, along with a host of other tweaks for results that rival OLED panels and in some key areas outperform them. That includes brightness, which in the temptingly-priced 65C845 can hit 2000-nit peaks during HDR playback across HDR10, HDR10+ and Dolby Vision IQ, with full-white levels of 800 nits. This 65in TV's performance will thrill movie fans and gamers alike (the set is fully compatible with latest-generation consoles), as will a comprehensive feature list that includes Google TV, an Onkyo-designed speaker system, and IMAX Enhanced certification. This is another fine all-round winner from China's TCL.

EISA AWARD Best Product 2023-2024
PREMIUM OLED TV
Samsung 77S95C

Class-leading HDR brightness, deep black levels and a vibrant, wide colour performance cement this Samsung TV's premium status. Enabling the 77S95C's immaculate imagery is Quantum Dot OLED technology, here in second-generation guise and benefiting from new panel driving software and a refined light path. Coupled to this is Samsung's upgraded Neural Quantum Processor 4K, which helps finesse motion, clarity, colour and more. When it comes to audio, a multi-speaker array ranged around the screen brings an immersive, cinematic feel to movies, TV and gaming, and the design of this 77in model is equally inspiring, from the One Connect box for a clutter-free installation to the high-quality finish of its ultra-slim frame. Looking for the ultimate OLED TV? Look here…

EISA AWARD Best Product 2023-2024
BEST BUY OLED TV
Philips 55OLED808

An excellent image performance and a wallet-friendly price make the 55OLED808 the OLED TV to beat in the competitive mid-range market. Building on the success of the brand's previous 8 series models, this new set showcases improvements to Philips' P5 processing engine, Ambilight system, user interface and more. It's a sublime performer with 4K HDR content, benefiting from superior light control and contrast, plus skilful tone-mapping, while HD material is effectively upscaled. As expected from a Philips screen, there's a wealth of picture adjustments on offer to tune the 55OLED808's images, plus well-judged presets for ease of use. Google TV smarts, HDMI 2.1 connectivity and a punchy integrated sound system complete a winning proposition.

EISA AWARD Best Product 2023-2024
BEST BUY MINI LED TV
Hisense 65U7KQ

The entry point into Hisense's 120Hz 'ULED' TV line-up, the 65U7KQ combines a 4K panel with a Mini LED backlight offering 384 dimming zones. This technology, allied to Quantum Dot colour delivery, results in crisp pictures with excellent local contrast and vivid hues. Dynamic Dolby Vision IQ, HDR10+ and HDR10+ Adaptive formats are supported, with the TV's colour temperature and brightness sensors measuring the room and adjusting images accordingly. It's a feature-rich set too, with HDMI 2.1 inputs accepting signals up to 4K/144Hz, Apple AirPlay 2 support, plus Hisense's bespoke VIDAA U7 operating system granting access to a wide range of apps. The 65U7KQ is a superb mid-range option that impresses with its performance, features and style.

EISA
EXPERT IMAGING AND SOUND ASSOCIATION

EISA AWARD Best Product 2023-2024

GAMING TV

TCL 55C745

A high-quality display is needed to tap into the potential of the latest generation of games consoles and PCs, and TCL's 55C745 is up to the challenge. This 55in TV appeals with its gaming bar interface and QLED panel capable of a 4K/144Hz VRR presentation (plus Full HD at a lightning-fast 240Hz). Key features including ALLM, Dolby Vision gaming and FreeSync Premium Pro are also incorporated, so there's no tearing or stuttering while you enjoy sharp and clean low-latency images. But this TV is not just for gamers: its colour handling, brightness, HDR abilities and full-array local dimming translate into a dynamic movie performance, while the Google TV interface brings streaming apps and voice control. However you plan to use it, the 55C745 is superb value.

EISA AWARD Best Product 2023-2024

FAMILY TV

Philips 55PUS8808

This 55in Ambilight-enabled LCD TV from Philips has your living room in its sights and succeeds thanks to its S-IPS panel that supports a wide viewing angle, and a punchy, bright picture performance that isn't fazed by ambient light. Positioned by this iconic brand as a home entertainment all-rounder, the 55PUS8808 fits the bill by virtue of its accomplished 2x40W audio, multi-format HDR handling, gaming credentials and content-rich Google TV smart platform. There's even DTS Play-Fi integration, enabling the TV to become part of a multiroom audio system, or take on centre-channel duties in a surround-sound set-up. Philips' elegant styling also deserves a thumbs up, but it's the 55PUS8808's image quality and affordable pricing that seals the deal.

EISA AWARD Best Product 2023-2024

GIANT TV

TCL 98C735

For those seeking to turn a living room into a home cinema with larger-than-life images, TCL's 98C735 is the answer. A 98in TV with Mini LED backlight and Quantum Dot panel technology, its wall-filling pictures combine deep blacks with excellent shadow detail and deliver stunning highlights thanks to impressive peak brightness and local dimming. HDR movies, whether in HDR10, HDR10+ or Dolby Vision IQ, dazzle with colour, while a wide viewing angle and excellent anti-reflection ability guarantee a cinematic experience for a big audience. Full gaming compatibility for high-end consoles and PCs, plus Google TV integration, give this giant-sized screen all-rounder status, and at a price that doesn't break the bank.

EISA AWARD Best Product 2023-2024

HOME THEATRE PROJECTOR

BenQ W4000i

BenQ's expansive projector stable includes many multi-use designs, but the W4000i focuses on full home cinema duties. There's magnificent clarity and colour from this beamer's combination of the latest and largest 0.65in 4K DLP panel, a 4LED light source to deliver a claimed 3200 ANSI Lumens brightness, and BenQ's exclusive CinematicColor technology yielding 100% of the DCI-P3 colour gamut. HDR-PRO technology, with Local Contrast Enhancer, optimises dynamic contrast in HDR10 and HLG playback. And while designed for serious cinephiles, this is still a smart projector, with a Wi-Fi dongle introducing Android TV and all its apps, including Netflix. Versatile set-up, fuss-free operation and a quality performance make BenQ's W4000i a brilliant home theatre solution at the price.

EISA AWARD Best Product 2023-2024

BEST BUY PROJECTOR

XGIMI HORIZON Ultra

This home cinema projector takes XGIMI's HORIZON range to new heights. A native 4K resolution model, its 'Dual Light' engine combines the brightness and colour accuracy of LED with the contrast and sharpness potential of laser. Added to this are Dolby Vision HDR for optimal playback of premium content, and adjustment of its dynamic iris for performance fine-tuning. Its crisp, vivid images can be accompanied by powerful sonics from a built-in Harman Kardon sound system, while Android TV integration allows control via voice and smartphone, in addition to a huge app selection. Set-up versatility including auto-focus and auto-keystone makes the HORIZON Ultra easy to install, and with its smart design and compact chassis you can place it anywhere in your home without compromising on style or performance.

EISA AWARD Best Product 2023-2024

PORTABLE PROJECTOR

XGIMI MoGo 2 Pro

This compact Full HD DLP projector is a triumph of both brightness and intelligent operation, with the MoGo 2 Pro's 400 ISO Lumens output overcoming even ambient daylight. Its rich images, up to 120in, achieve D65 colour temperature and 90% of the DCI-P3 gamut. They are rock-solid too as XGIMI's excellent 'Intelligent Screen Alignment' scans 10,000 data points to automatically straighten and focus the pictures while avoiding obstacles, even from off-axis positions, and without interrupting your show. Sources can be connected over HDMI and USB, and there's Android TV 11.0 to provide thousands of apps, Google Assistant and Chromecast. The projector's stereo speaker array also packs a punch, making it the all-round solution for those who want to take their entertainment anywhere.

EISA
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EISA AWARD
Best Product
2023-2024
AV RECEIVER
Primare SPA25

Marking a welcome return to the AV receiver arena, Primare has created a multichannel, immersive audio powerhouse that captivates with both movie and music playback. A nine-channel design based around energy-efficient Hypex Class D amplification, and supporting front speaker bi-amping, the SPA25's sound mixes delicate smoothness with transient attack, bass weight and seamless soundstaging — all ready to be fine-tuned by Dirac Live software. Other features, including the company's well-regarded hi-res Prisma streaming platform and a high-quality USB DAC input, will satisfy two-channel audiophiles. Finally, the elegant style and premium build quality of the SPA25 ensures it looks as good as it sounds.

EISA AWARD
Best Product
2023-2024
BEST BUY AV RECEIVER
Onkyo TX-RZ50

Thanks to an extensive feature set, including full-bandwidth Dirac Live for in-depth calibration, Onkyo's TX-RZ50 receiver offers impressive value for money. Even better, it backs this up with a gutsy, immersive performance that wrings every last detail from Dolby Atmos and DTS:X movie soundtracks. Ample power from its nine-channel Dynamic Audio Amplification output stage ensures a dynamic, bass-rich presentation, while 11-channel processing allows for system expansion. Music playback isn't ignored either: two-way Bluetooth and a DAB+ tuner join forces with Apple AirPlay 2, Chromecast and DTS Play-Fi multiroom to cover all bases. Rounding out a complete package is Onkyo's slick Controller app, plus an app option for Dirac, which makes operation a breeze.

EISA AWARD
Best Product 2023-2024
HOME THEATRE POWER AMPLIFIER
Musical Fidelity M6x 250.7

A perfect partner for power-hungry loudspeakers in a home cinema, the M6x 250.7 offers dynamic headroom, rich bass and a feeling of effortless energy from its rated 7x150W amplification. Inside the all-metal chassis, fronted by a milled aluminium fascia, a pair of Musical Fidelity's 'Super Silent' toroidal transformers feed into seven independent amp modules, each with their own heatsinking — bi-amping is provided via daisy-chain outputs on the unit's rear panel, above its choice of balanced or unbalanced inputs. A heavyweight amplifier in terms of both build quality and performance, with a wonderfully transparent sound, the M6x 250.7 is a multichannel marvel.

EISA AWARD
Best Product 2023-2024
PREMIUM AV AMPLIFIER
Denon AVC-A1H

The current state-of-the-art in AV amplifier design, Denon's AVC-A1H marries 15.4-channel processing to a 15-channel power output and is therefore primed for the most expansive of home theatre systems. The attention to detail reserved for the brand's 'A1' class is in evidence, from the amp's massive toroidal transformer and separate power supply for its DAC stage, to the 32-bit DSP engine and optimised circuit layout. This high-quality engineering, coupled to both Audyssey MultEQ XT and Dirac Live calibration options, results in a reference-level audio performance from movies and music. Denon's flagship blends energy and scale with breathtaking resolution, detail and clarity. No other multichannel integrated amplifier can match it…

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EISA AWARD Best Product 2023-2024

BEST BUY SOUNDBAR

JBL Bar 300

Ready to give a flatscreen TV a serious sonic boost, but from a compact, easy-to-accommodate design, JBL's Bar 300 punches well above its affordable price point. Its six drivers and onboard amplification dovetail with MultiBeam processing and Dolby Atmos decoding to create a well-balanced, full-range sound with notable effects placement and steering. For this generation JBL has both refined its remote handset and introduced a new app controller, making it simple to adjust the Bar 300's EQ settings, run its auto-calibration routine, and stream music fuss-free. This soundbar enters a hotly contested market and coolly claims the top spot.

EISA AWARD Best Product 2023-2024

SOUNDBAR

Loewe klang bar3 mr

Loewe's smartly dressed klang bar3 mr aims to attract anyone who desires immersive TV sound, without the hassle. Supporting Dolby Atmos, this 3.1-channel model serves up enveloping sonics rich in detail and excitement. Musical performance is great too, and because of its pair of 100mm top-mounted woofers, it doesn't require a subwoofer to sound mighty. One can, however, be added wirelessly by those desiring more bass impact, as can wireless rears to take the surround experience to another level. Employing the DTS Play-Fi platform, the klang bar3 mr possesses a variety of streaming options and caters to a multiroom set-up – among its connections are pre-outs for five channels, a unique feature that enables audiophile set-ups with active speakers.

EISA AWARD Best Product 2023-2024

HOME THEATRE DISC PLAYER

Magnetar UDP800

For a high-quality AV experience, there is still nothing better than Ultra HD Blu-ray discs, especially when delivered by a premium player. Magnetar's UDP800 is the star you need to illuminate your home theatre, combining DVD, Blu-ray and Ultra HD Blu-ray playback with handling of music formats including DVD-A and SACD. Comprehensive user menus and connectivity make this disc-spinner user friendly, while its high-end construction befits the price tag. The UDP800 delivers 4K discs (including Dolby Vision or HDR10+) with pin-sharp detailing and smooth colour gradations via HDMI, but switch to music though its analogue outputs (RCA or XLR) and its performance is equally captivating. The UDP800 is the long-awaited new king of discs.

EISA AWARD
Best Product 2023-2024
SOUNDBAR SYSTEM
Yamaha True X series

A home theatre system of impressive flexibility, Yamaha's True X combines the SR-X40A soundbar, SW-X100A subwoofer and WS-X1A surround speakers, all connecting to each other wirelessly for a slick, authentic 3D audio experience. Whether crafting immersive soundscapes from Atmos movie soundtracks or games, or playing music, the performance always captivates with its energy, detail and precise soundstaging. The fabric-wrapped enclosures are on-trend, as is the system's provision of control via remote, app, or voice through its in-built Alexa microphone. And there's another trick up this system's sleeve – both rears can operate in solo mode as fully portable (and waterproof) Bluetooth speakers. For Yamaha, X really does mark the spot.

EISA AWARD
Best Product 2023-2024
PREMIUM SOUNDBAR
Bang & Olufsen Beosound Theatre

Employing a range of drivers, including a coaxial centre array and dual 165mm woofers, the Beosound Theatre delivers a spacious and well-defined sound with crisp detail and powerful bass, all from a single, gorgeous cabinet. Movie soundmixes are immersive and dramatic, while music listening — either stereo or upscaled to the Dolby Atmos soundfield – benefits from the soundbar's remarkable midrange presentation. Extensive connectivity includes four HDMI ports and wired/wireless PowerLink for adding additional B&O speakers, while operation is easy via a partnering app that opens the door to streaming music services. A customisable design even allows the Beosound Theatre's chassis to match TVs of different sizes.

EISA AWARD Best Product 2023-2024

LOUDSPEAKER SERIES

KEF R Series

Technologies developed for KEF's higher-end loudspeakers, including the latest-generation Uni-Q driver with metamaterial absorption technology (MAT), inform the design and performance of its stunning R Series. A seven-model range comprising floorstander, standmount, centre and Dolby Atmos-enabled surround options, it's suited to both home theatre and hi-fi enthusiasts alike. Whether used for music or movies, across the speakers there's a dynamic, detailed and thrillingly natural sound combining controlled, extended lows with open, wide-reaching highs. And the various colour options, including special editions for the R3 standmount and R7 tower, will have these gorgeous-looking cabinets fitting right in.

EISA AWARD Best Product 2023-2024

HOME THEATRE SUBWOOFER

Perlisten D212s

Perlisten's D212s has a fearsome specification, its two custom-designed 300mm woofers, arranged in a push-pull configuration and powered by a 2.4kW amp stage, claiming a bass extension below 20Hz. But these specs only hint at the full story: in your home theatre this meticulously-engineered subwoofer offers a fast, dynamic performance, with expert control over its output. Hard-hitting LF effects are delivered with slam, while atmospheric bass details benefit from the D212s' impressive subtlety. Playing a vital part here is advanced DSP, which — in conjunction with Perlisten's app controller — enables in-depth tuning to suit the listening environment, complete with parametric EQ. This is a subwoofer with both brawn and brains!

EISA AWARD Best Product 2023-2024

POWERED STANDMOUNT LOUDSPEAKERS

Klipsch The Sevens

This powered bookshelf/standmount model takes a design cue from the American brand's 'Heritage' speakers and combines it with a forward-thinking specification — the result is a package notable for its styling, feature set and performance. Tractrix horn-loaded tweeters and 165mm bass/mid units are pushed into action by custom DSP and beefy internal amplification. The Sevens' sound is bass-rich, large-scale and packed with detail, and can be fine-tuned to suit personal taste through Klipsch's intuitive Connect app. Comprehensive connectivity including HDMI ARC, USB-B, Bluetooth, analogue (inc. MM phono), plus hi-res music playback to 192kHz/24-bit, ensures this is a system that's ready for anything!

BEST HOME THEATRE PROJECTOR 2023-2024 BY EISA

BenQ W4000i(HT4550i) 4K Home Cinema Projector

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HI-FI EXPERT GROUP AWARDS 2023-2024

▲ Pro-Ject T2 W

HI-FI EXPERT GROUP AWARDS

EISA HIGH-END CD PLAYER 2023-2024
Hegel Viking

EISA TURNTABLE 2023-2024
Thorens TD 204

EISA VINYL SYSTEM 2023-2024
Pro-Ject T2 W ►

EISA STREAMER 2023-2024
iFi Audio NEO Stream ►

EISA DAC 2023-2024
Ferrum Audio WANDLA

EISA DIGITAL PLAYER 2023-2024
Volumio Rivo ►

EISA INTEGRATED AMPLIFIER 2023-2024
NAD C 3050 ►

EISA BEST VALUE STREAMING AMPLIFIER 2023-2024
SVS Prime Wireless Pro SoundBase

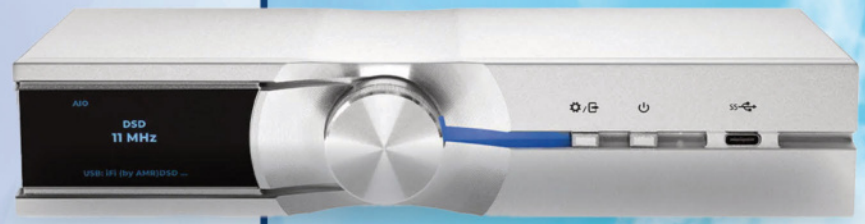
EISA COMPACT STREAMING AMPLIFIER 2023-2024
Bluesound POWERNODE EDGE

EISA STREAMING RECEIVER 2023-2024
Yamaha R-N2000A

EISA HIGH-END INTEGRATED AMPLIFIER 2023-2024
Musical Fidelity Nu-Vista 800.2 ►

EISA HIGH-END STREAMING AMPLIFIER 2023-2024
Hegel H600

iFi Audio NEO Stream ▼



▼ Volumio Rivo

NAD C 3050 ▼

▼ Musical Fidelity Nu-Vista 800.2

MoFi SourcePoint 8 ▲

▲ System Audio Silverback 1

◄ dCS Lina System

◄ T+A Solitaire T

HI-FI EXPERT GROUP AWARDS (continued)

EISA STANDMOUNT LOUDSPEAKERS 2023-2024
◄ MoFi SourcePoint 8

EISA FLOORSTANDING LOUDSPEAKERS 2023-2024
Bowers & Wilkins 703 S3

EISA PREMIUM FLOORSTANDING LOUDSPEAKERS 2023-2024: Perlisten R7t

EISA HIGH-END LOUDSPEAKERS 2023-2024
Wilson Audio Alexia V

EISA WIRELESS BOOKSHELF LOUDSPEAKERS 2023-2024
KEF LSX II

EISA WIRELESS ON-WALL LOUDSPEAKERS 2023-2024
System Audio Silverback 1

EISA WIRELESS FLOORSTANDING LOUDSPEAKERS 2023-2024: Dynaudio Focus 50

EISA HEADPHONES 2023-2024
Meze Audio 109 PRO

EISA HIGH-END HEADPHONE SOLUTION 2023-2024
dCS Lina System

EISA HIGH-END HEADPHONES 2023-2024
Yamaha YH-5000SE

Combined Award with Home Theatre Audio Group
EISA LOUDSPEAKER SERIES 2023-2024
KEF R Series

EISA POWERED STANDMOUNT LOUDSPEAKERS 2023-2024
Klipsch The Sevens

Combined Award with Mobile Devices Expert Group
EISA PREMIUM WIRELESS HEADPHONES 2023-2024
T+A Solitaire T

EISA MOBILE DAC 2023-2024
iFi Audio GO pod

EXPERT GROUPS FOR MOBILE DEVICES, IN-CAR & PHOTOGRAPHY AWARDS 2023-2024

MOBILE DEVICES EXPERT GROUP AWARDS

EISA BEST BUY SMARTPHONE 2023-2024
HONOR 90

EISA CONSUMER SMARTPHONE 2023-2024
OPPO Reno10 Pro

EISA SMARTWATCH 2023-2024
HONOR Watch GS 3

EISA PREMIUM SMARTWATCH 2023-2024
Huawei Watch Ultimate ►

EISA BEST BUY WIRELESS HEADPHONES 2023-2024: Philips Fidelio L4

EISA IN-EAR HEADPHONES 2023-2024
Philips Fidelio T2

EISA MOBILE DAC 2023-2024
iFi Audio GO pod

EISA BEST BUY PORTABLE SPEAKER 2023-2024: Pure Woodland

EISA PREMIUM PORTABLE SPEAKER 2023-2024: Bang & Olufsen Beosound A5 ▼

Combined Award with Photography Expert Group EISA MULTIMEDIA SMARTPHONE 2023-2024: Sony Xperia 1 V

Combined Award with Mobile Devices Group
EISA PORTABLE PROJECTOR 2023-2024
XGIMI MoGo 2 Pro

Combined Award with Hi-Fi Expert Group
EISA PREMIUM WIRELESS HEADPHONES 2023-2024: T+A Solitaire T

IN-CAR EXPERT GROUP AWARDS

EISA IN-CAR HEAD UNIT 2023-2024
Alpine HDS-990 Status ▲

EISA IN-CAR AMPLIFIER 2023-2024
Ground Zero GZUA 6SQ

EISA IN-CAR DSP AMPLIFIER 2023-2024
Mosconi Gladen One 8|10 DSP

EISA IN-CAR SOUND PROCESSOR 2023-2024: ESX QE812SP

EISA IN-CAR DSP SOFTWARE 2023-2024
Audison bit Drive

EISA IN-CAR SPEAKER SYSTEM 2023-2024
Ground Zero GZPC 165.3SQ-ACT

EISA IN-CAR SUBWOOFER 2023-2024
Morel Ultimo PowerSlim PS12D

EISA IN-CAR OEM PREMIUM AUDIO SYSTEM 2023-2024
Maserati GranTurismo with Sonus faber High Premium Audio System

EISA IN-CAR INTEGRATION 2023-2024
Helix Compose Platform

EISA MOTORCYCLE AUDIO COMPONENT 2023-2024
Rockford Fosgate HD9813RG-STAGE3

Huawei Watch Ultimate ►

◄ Bang & Olufsen Beosound A5

PHOTOGRAPHY EXPERT GROUP AWARDS

EISA CAMERA OF THE YEAR 2023-2024
Nikon Z 8 ▲

EISA ADVANCED FULL-FRAME CAMERA 2023-2024
Sony Alpha 7R V

EISA FULL-FRAME CAMERA 2023-2024
Canon EOS R6 Mark II

EISA CONTENT CREATOR CAMERA 2023-2024
Sony ZV-E1

EISA APS-C CAMERA 2023-2024
Fujifilm X-H2

EISA BEST BUY CAMERA 2023-2024
Canon EOS R8

EISA VIDEO CAMERA 2023-2024
Panasonic Lumix S5IIX

EISA LENS OF THE YEAR 2023-2024
Sony FE 20-70mm F4 G

EISA WIDEANGLE ZOOM LENS 2023-2024
TAMRON 20-40mm F/2.8 Di III VXD

EISA STANDARD PRIME LENS 2023-2024
Sony FE 50mm F1.4 GM

EISA PORTRAIT LENS 2023-2024
Nikon NIKKOR Z 85mm f/1.2 S

EISA TELEPHOTO LENS 2023-2024
Canon RF 135mm F1.8L IS USM

EISA SUPER-TELEPHOTO LENS 2023-2024
Nikon NIKKOR Z 400mm f/4.5 VR S

EISA TELEPHOTO ZOOM LENS 2023-2024
TAMRON 50-400mm F/4.5-6.3 Di III VC VXD

EISA MACRO LENS 2023-2024
OM System M.Zuiko Digital ED 90mm F3.5 Macro IS Pro

Combined Award with Mobile Expert Group
EISA MULTIMEDIA SMARTPHONE 2023-2024
Sony Xperia 1 V

EISA SUPER-TELEPHOTO ZOOM LENS 2023-2024
SIGMA 60-600mm F4.5-6.3 DG DN OS | Sports ▼

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Surprise us...

Design & installation by Wavetrain Cinemas

You may know exactly what you'd request in a bespoke luxury home cinema. But this home owner, perhaps not so much. 'Surprise us!', he told the team at Wavetrain Cinemas...

Some movie fans will know exactly what they want in their dream home cinema. Perhaps they want it to look like a classic movie house, or to take elements from a particular movie — we've seen Star Wars home cinemas in the past, and one using design ideas from *The Matrix*. Or they might want specific equipment, or ask for a drinks bar at the back, or to prioritise screen size over all other considerations. There's invariably a wishlist of some kind.

But when Wavetrain Cinemas began discussions over the design for this home cinema, there was no initial concept.

"The client's brief was simply that he wanted an amazing home cinema," says Wavetrain Cinemas' David Moseley, "or to use his own words: 'surprise us'."

Wot, no brief?

Far from feeling bewildered, however, Wavetrain's team was ready to jump on this very general initial guidance.

"This has become a common occurrence for us," says David Moseley. "Clients are often happy to trust us to design the cinema room. We always take the project from initial design concepts to building the cinema, and through to the final installation and calibration. We rarely repeat a design, and even if a client asks for a specific design, we will customise it to the client and the architecture of the main house."

But with no specific brief, where to start?

"Well, when there's a completely open design, we'll try to find clues as to what makes the client tick. This is hard to explain, really — how we manage to come up with a creative idea. But in this instance the main house was one of the oldest houses in Australia, and since it had already been renovated, we asked the clients to show us around what had been done. During that walk around, we came across some windows

repeated in the house with pointed arches that felt gothic in style — they reminded me of a visit to England and the detail in a church cloister.

"So the initial concept was to create a 'church cloister' entrance [left] leading down to the basement room, setting the tone for the cinema, which was going to be a luxurious design with an emphasis on the material use and differences in texture and sheen. We presented the original design concept to the client, and it was not only accepted, they were blown away by the ideas. And apart from some of the lighting — specifically the pendants — the design never altered from our original concept."

Concert-level dynamics

There was one client request beyond being surprised, however, which was that the room's audio system should able to play concerts at realistic levels. Wavetrain accordingly increased the SPL specifications to 100dB continuous, with peaks of 110dB at the front row, and some to spare.

"The bed channels of the system are able to do this with four to five dB of headroom," says Moseley.

But there's more to dynamics than the upper level; the noise floor also defines the range. Wavetrain aimed for NC20, a noise criterion level equivalent to sound levels of some 30dBA for air-conditioning and operational noise — a level far below recommended domestic standards. Though as we'll see later, it was AC and projector ventilation that became the project's biggest challenges.

To achieve the required dynamics and audio dynamics, Wavetrain turned to Elementi Audio's high-output active speaker system designs, which were developed by Moseley himself.

"Our clients dream of an escape — not just escaping into the movie itself, but the whole theatrical experience of entering a great piece of architectural design."

"We offered the client both the Elementi 'Fire' compression driver systems and the Elementi 'Air' ribbon-based designs, and he preferred the musicality of the Air ribbons and the 360-degree immersion that their ultra-wide dispersion characteristic provides. We decided on a configuration that would provide a maximum sweet spot, and high quality components for the audio system that would be used most often."

That system comprises LCR Elementi Sirocco speakers (see right) behind the acoustically-transparent screen, six Elementi Zephyrs in surround positions, and four Elementi Onyx 15-inch subwoofers. Then on Atmos duties there are six Pro Audio Technology in-ceiling speakers. These are powered by a Pro Audio eight-channel amplifier, whereas the Elementi speakers follow the brand's unique audio design in having their own associated amplifiers located very close to the speakers, in vertical enclosures. This has the benefit of very short speaker cable runs with minimal electrical interference or losses.

It also allows the choice of various modular amplifier configurations to match the role of each speaker. Here the Sirocco LCRs and Zephyrs are each biamped by Elementi Tungsten 2-channel amplifiers offering 1000W of power, and being fully digital they benefit from floating 32-point DSP processing, digital crossovers, FIR filters with correction in the frequency and time domains, and high quality DACs. The power modules themselves are high-flow designs from Denmark's Pascal, which Wavetrain rates as "incredibly reliable" as well as offering superior sonic performance.

There is, all told, almost 15,000W of amplifier power in this home cinema.

In terms of layout there are no front wide channels used here, as the wide dispersion of the LCRs (120 degree horizontal dispersion) and side surrounds (160 degrees) means these are not required to fill the usual front wide 'hole' — and these are underutilised channels in most soundtracks anyway, notes Wavetrain.

The four subwoofers are placed on the quarter points in the width of the front and rear walls, and unusually at the half point of the height as well, all to cancel the various potential standing waves.

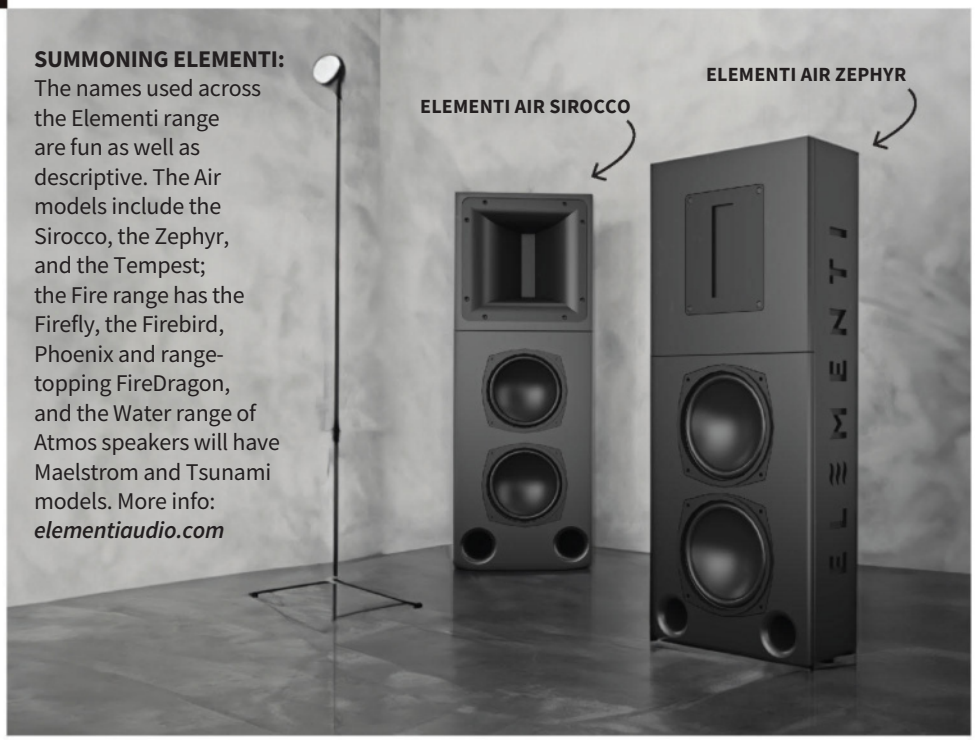
"We also implemented bass traps in all the ceiling bulkheads, front corners and the seating platform," notes Moseley. "We were limited with what we could do by the architectural design, but the results were good. Storm Audio provides very flexible bass management, and here we run all subs as a group for LFE, but then the front and rear subs as two separate groups for front-to-rear bass steering, supported by steering from the relative speakers. This proved better than isolating all the subs individually, as that provided too much variation across the seats — it was tested and discarded."

So the full channel count here is 9.4.6, but with combined sides and two-way bass management, they are effectively used as 7.2.6.

And as is something of a rule in Wavetrain Cinemas, there is no central master seat.

"Putting a seat in the middle of the row means sitting in all the nulls/peaks for the width," explains David Moseley. "Even if you fix that with sub positions, it's still occurring for all other speakers and that seat can't be tuned in conjunction with the other seats. By carefully placing seats in the width, you can attain a much more even bass response that requires less adjustment.

"The same applies for the length of the room, but in this instance we have taken the



SUMMONING ELEMENTI: The names used across the Elementi range are fun as well as descriptive. The Air models include the Sirocco, the Zephyr, and the Tempest; the Fire range has the Firefly, the Firebird, Phoenix and range-topping FireDragon, and the Water range of Atmos speakers will have Maelstrom and Tsunami models. More info: ***elementiaudio.com***

reference point as being the centre of both rows. We have no issue setting up a preset for one seat if required, or if they instruct us to make one row the primary, we would do so, or we would bias the sound. These things should always be a client choice, but preferencing one row makes too big a compromise for the other row. The client brief here was to have all seats sound good."

End-to-end digital

While we've covered Elementi-equipped home cinemas before, this is the first we've seen to take advantage of the Elementi system's ability to use Dante's audio-over-IP [AoIP] standard. This means the signal is kept digital all the way to the Elementi amplifiers using standard data cabling rather than pricey balanced connections or speaker cables, massively simplifying the cabling on the project. And this rethinking of home cinema topology also delivers sonic benefits.

"The entire audio system was set up for AoIP via Dante," says Moseley. "The amplifiers are digital, with their own DSP, so previously, when using analogue connections, you would have to do a D/A conversion on the pre out, plus a A/D conversion internally in the amp. Jitter is audible from those conversions, affecting both time and, in the D/A conversion, also level, the more audible of the two, especially in higher frequencies.

"Using Dante removes the unnecessary conversions, and allowed us a tighter focus in the design on low jitter. The Lumagen has the lowest jitter output of any HDMI output, at 10 picoseconds. The Storm Audio processor with shielding between the input/output processing also has an exceptionally low jitter. Passing the signal via Dante over a dedicated switch means we have a perfect digital signal being delivered from the processor to the amp, and not converted to analogue until the very last moment in the amplification. With a lack of frequency level changes and no smearing of the time domain the audio is simply easier to listen to, and details easier to discern."

This clarity is further protected by full acoustic treatment and also sound isolation, including fully isolating the whole structure from the sandstone foundation, and having all speakers and subwoofers further disconnected on resilient mounts.

Sources for the system include a Panasonic UHD Blu-ray player for discs, and an Apple TV media player for streaming.

Furman power conditioners supply the rack-mounted items and the projector, although the power amps are on general room power, as the home's power supplies provide filtration and the whole house has its own voltage regulation at the main input.

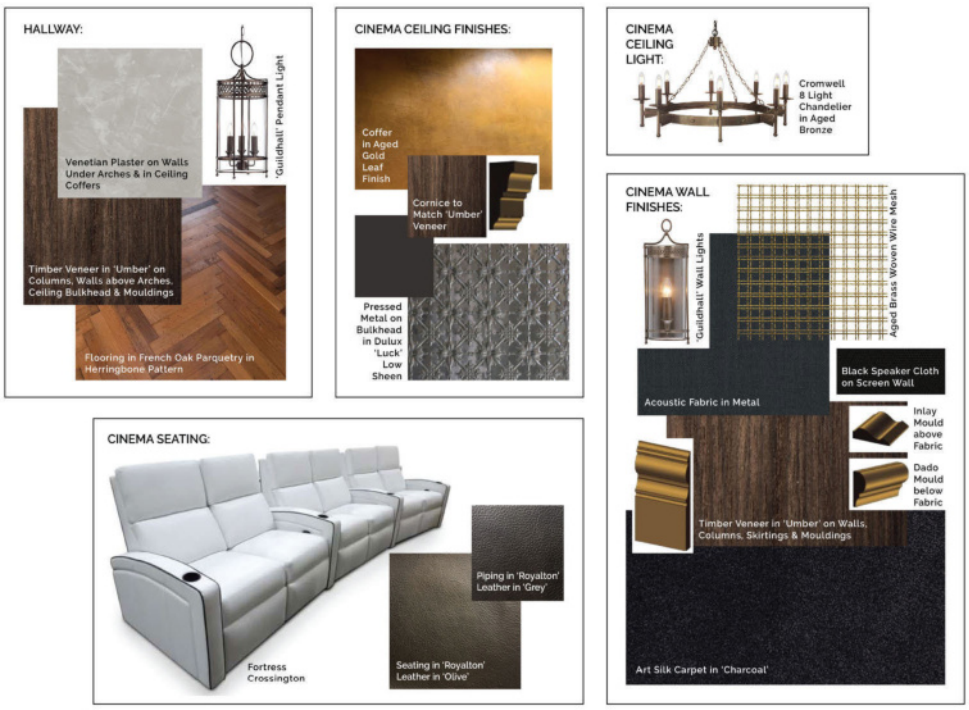
Lasers & mirrors

So to the vision system, which is headed by the Christie M 4K25-RGB projector with its solid-state pure RGB laser optical system, illuminating a 165-inch Severtson Cinemascope screen, yielding an image 3.8 metres (152 inches) wide.

"The video system goal was to produce 100 to 200 nits and provide a Rec. 2020 system," says David Moseley. "The final measured figure was 130 nits, but with perceived brightness it appears closer to 200-300 nits, which is how we set up for tone mapping on the Lumagen."

The Lumagen video processor was used not only to calibrate the system for tone mapping and colour accuracy, but also to handle all video switching, including presets for three different screen ratios: 2.4:1, 16:9 and 1.9:1, this last for IMAX content with slight cropping. A Screen Research masking screen increases perceived contrast.

"We also used a low-gain screen [0.7 gain]", says Moseley. "It doesn't change the contrast, but it does lower the black level. This projector is capable of 7000:1 on/off contrast and 1100:1 ANSI, but lowering the black level means we have better all-round blacks for dark scenes. Considering the brightness of the projector, we considered this a good compromise to make."



◂ MOOD BOARD: Wavetrain's interior design brief as presented to the client, specifying the key colour palette and finishes for the project, including paint, timbers, fabrics, and the Fortress Crossington motorised reclining armchairs and loveseats, upholstered in 'Royalton' leather in 'Olive', with contrasting leather piping on the arms.

But where is the projector? It doesn't fire straight down the room, as is common.

"We could not recess the projector into the wall, so we needed to vertically mount it, to hide the bulk of what is a large projector with a high light output," explains Moseley. "Then we use mirrors. The projector is in an engineered hush box with a double 6mm optically-coated port glass assembly — all of which we manufacture in-house, along with the mirror assembly. This uses a scientific-quality optical first surface mirror. The total reflectivity for the system is less than 5%: both pieces of glass are angled to reduce reflections, and the internals are lined with compressed insulation board to absorb both noise and light reflections. It's these small details that are often forgotten, yet which massively improve the end result."

Talking of reflections, what about that gold ceiling? Isn't that reflective?

"I did have to convince my staff on that," admits Moseley. "They were adamant that the gold ceiling was going to be an issue, and why would I do this in a high-end cinema! But it works for a few reasons. The ceiling is very high, with deep coffers, so reflections off the screen are either at a very high angle for the front row, or cut by the coffer on the rear row. We also aged the brass to cut back the reflective quality — it's now very dark, which took some six coats of ageing solution, and it will continue to darken over time. The gold is very muted, and the lower section of the ceiling is a very dark colour, almost black. So when the lights are off, the whole cinema is very dark in its overall palette, and reflections back off the screen are almost non-existent."

As for audio reflections, the unusual ceiling treatment was enabled by the dispersion characteristics of the Elementi speakers.

"The front and rear bed channels have a 20-degree vertical dispersion from the tweeter, and the ceiling also being very high and vaulted cuts down angles of reflection, we didn't need to worry too much about the first reflection off the ceiling. This allowed us to take the ceiling in the new design direction."

Clearing the air

But there were unexpected issues with the ceiling, along with that cloister hallway, also with getting a supply of air into the room and out again, notably to ventilate the projector, which produces heat even at half power. And these obstacles came not from the original design, but as the result of project delays.

"We normally handle all elements of the room, and that includes not only the interior design, the seating, the carpets, but also all the electrical and AC," notes David Moseley. "We do not let other trades inside our cinemas, and the mechanical engineering is part of design.

"So here we would have built the cloister hallway as part of our contract for the cinema, project-managing that carefully with the site builder. Unfortunately here the client had timing issues and the cinema component got delayed until well after the project was completed. Meanwhile the builder and various contractors had just done what they wanted, running a huge amount of pipes and conduits through the ceiling, making it impossible to achieve the original design."

◄▼ FRONT WALL CONSTRUCTION: With the ceiling's gold-leaf-finish and low-sheen pressed metal bulkheads in place, the behind-screen Elementi speakers have been positioned. The three Air Sirocco speakers were inverted to keep the bass drivers positioned at the middle of the room height to cancel standing waves in the height.

During the build

REAR WALL CONSTRUCTION The preparation image here shows the shallow space at the rear into which the projector will be mounted vertically, its light reaching the screen via the mirror system which is just visible in the image below. ▼►

When Wavetrain returned to the task, it was decided to leave the hallway as it was. But within the main cinema the team had to divert cable runs and pipes so that the bulkheads wouldn't interfere with the coffered ceiling.

"This did cause us significant issues with the AC design and projector ventilation," says Moseley. "There was no allowance to get fresh air into the cinema, with the room being completely underground, plus we had the control room at the room's rear left with no ventilation available to it. So we put four air feeds into the control room, with a sectioned-off area to allow us to penetrate the wall with ducts in the vertical riser going both down for supply, pulling air from a shaded area of the house, and up for return air. We also installed a pressure release valve — a cinema is a pressurised room and you can't force in fresh air, so you need to release the pressure."

With the builder also loading the rear wall with pipework and electrical cabling, the Wavetrain team needed to lag the pipes, frame around them with a cavity, and then install a sound isolation system, before painstakingly adapting the curved ceiling to create a plenum for that return air supply and for the stream of heated air from the projector. The projector now receives a fresh air intake coming from the floor via an inline fan under the seats and an intake grille on the edge of the seating platform, "so we could attenuate any noise," says Moseley. "The total grille area is 50% bigger than the supply air duct, and this ensures no turbulence noise is generated — most noise from an AC system once you place the fan coil further away is actually turbulence, not plant noise. Here we are moving a lot of air through the projector box, so the item heard first is the projector and ventilation. But turn those off for just music listening, and the room is insanely quiet; the AC is inaudible. We hit our NC20 target on the rear row closest to the projector ventilation, and NC19 in the front row."

Also interesting is how Wavetrain deliberately keeps all the AC grilles at floor level. Why?

"Because air moving even gently through the light path will produce a shimmer on the screen," Moseley explains.

The final result is a room that is exceptionally well-controlled acoustically, but which still has plenty of life, adding to the "envelopment of the system" as David Moseley calls it, a characteristic of the Elementi 'Air' system's wide dispersion.

"It not throwing the sound at you like a compression driver system, so it's much easier to listen to," says Moseley, "and the ribbon tweeters are very light, so frequencies are extremely accurate in the time domain and accurately present transients in the sound. Vocals are crystal clear. With an exceptionally low noise floor, the dynamics of the system are also a standout. We always design our systems to have minimum 3dB of headroom. This means power without strain."

Shake it all about

Indeed the impact goes beyond the audible and visual: it's visceral as well, thanks to the inclusion of D-Box, a motion system which equips seats or platforms with movement synchronised to on-screen action using coding developed movie-by-movie. It's not actually a "shake it all about" system; it uses precise control that genuinely adds a tactile dimension to movies (and games, especially simulations). At its best it heightens engagement and realism.

"The client here loved D-Box," says Moseley, "so all seating was designed to be compatible. And while it was initially installed into only the rear row, he quickly upgraded the entire cinema. We consider it a critical element and some 80% of our clients elect to install D-Box."

Pushing the boundaries

Indeed the client is clearly thrilled with the whole end result.

"We were immediately impressed with their knowledge and passion for not only audio engineering, but also design," he tells us. "After the initial design meetings we gave Wavetrain Cinemas complete creative control and asked that they surprise us — and we were extremely impressed with the results. The cinema is above and beyond what we could have imagined, and the audio/video quality has exceeded all expectations, making it our favourite room in the house. It's been a great experience, and Wavetrain Cinemas has our highest recommendation."

Indeed we gather that Wavetrain will return soon to implement Dirac Live ART (Active Room Treatment) — "a revelation, never experienced anything like it before", says Moseley. "And Dirac ART uses the subwoofers individually, so we'll break them apart again."

When we ask David Moseley what he think makes Wavetrain Cinemas different, he highlights how that passion for interior design adds something special on top of the technical design process.

"Anyone can design a black box in which to watch movies," he tells us. "But our clients dream of an escape — and that is not just about escaping into the movie itself, but the whole theatrical experience of entering a great piece of architectural design. Very few of our peers go to the extent that we do, but we feel that having total control is the only way to deliver these one-off boutique designs while still honouring what we do as a profession. We will always push the boundaries aesthetically — and that's why our clients seek us out."

EQUIPMENT & CONTACTS

EQUIPMENT

Panasonic DMP-UB820 UHD Blu-ray player
AppleTV 4K
Christie M 4K25 RGB pure laser projector
Lumagen Radiance Pro 5348 4K Video Processor
Severtson Screens 165-inch Cinemascope screen
Screen Research masking screen
Storm Audio ISP Mk2 32-channel processor
Elementi Sirocco bi-amp screen speakers x 3
Elementi Zephyr - bi-amp surround speakers x 6
Elementi Tungsten-2 amplifiers x 9
Elementi Onyx 15-inch subwoofers w. enclosure x 4
Elementi Titanium-2 amplifiers x 2 (subwoofers)
Pro Audio Technology SCRS-6c-ica in-ceiling loudspeakers x 6
Pro Audio Technology DMA-1508 power amplifier (Atmos channels)
Fortress Crossington seating
D-BOX seating actuation throughout
Araknis data and switching
Sanus AV rack
Furman Elite 16 linear power conditioners x 2
ISF Video Calibration of Projector and Lumagen

Images: Scott Sauer

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Meet the new boss

Sony
STR-AN1000
streaming AV receiver

It looks the same as the old boss, it's true, but internal upgrades and updated abilities bring Sony's new midrange receiver back to the top of its class.

It's been a while since we've had a midrange Sony AV receiver in for review — but that's because the STR-AN1000 is a clear replacement for the STR-DN1080, which enjoyed a five-year reign as one of the most highly regarded receivers at this level. Sony clearly isn't one for annual iterations in this market: it's happy to wait until the standards have shifted enough to require a hardware overhaul. With such updates, this new STR-AN1000 gains significant upgrades over its predecessor, internally at least, and also bears some interesting technology from the Japanese giant.

We say 'midrange', but this receiver is currently the highest in a range of three. In the US there are higher models, numbered 3000, 5000 and 7000, and all boasting Sony's ES 'Elevated Standard' suffix. But boo, those are currently for 110V markets only, we gather. We must hope Sony elects eventually to create 240V versions for the rest of us to enjoy.

As a range-topping receiver for now, then, the AN1000 is competitively priced at $1699. The new model brings technical standards up to date with HDMI 2.1, so 4K compatibility throughout, and two inputs that handle 4K/120 or 8K/60. There are still seven channels of power on board, so this receiver is able to service a straight seven-channel surround system, or a 5.1 system with two height channels, which is how we assessed it.

You bring your own speakers, of course, but if you want to minimise cable runs you might consider that the STR-AN1000 can connect wirelessly to Sony's optional rear speakers (SA-RS5 and SA-RS3S) and wireless subwoofers (SA-SW5 and SA-SW37). The SA-RS5 wireless rears look very like the speakers in the Sound+Image award-winning HT-A9 surround system from Sony, which performed absolutely magnificently.

Using wireless rears means you're then wasting the power from those rear amplifier channels. While there's no way to simply reassign the unused power to

the front speakers, you are able to biamp your front speakers provided they have separate treble and bass terminals. Or you can use the spare outputs for an extra zone of audio. Even if you don't do that, wireless rears will take some strain off the receiver's new lower-distortion power transformer (with its improved copper-wound core and bobbin), so indirectly benefitting the other channels, as well as eliminating the need for the cables to your rears.

Still, we prefer to rely on cables where possible, and we judged the Sony receiver with a 5.1.2 reference speaker system that we know well, and nd properly cabled. How was the experience?

Build & features

When it comes to physical appearance, either Sony's industrial designers have not got round to visiting its AV division in the last decade, or this design is considered so very classic a layout as to be untouchable. The new receiver not only looks the same as the previous STR-DN1080 — absolutely identical on the front, button for button, so far as we can see — it looks the same as the model before that, and the one before that, and indeed, other than button labels and a lost front HDMI input, all the way back to 2013's STR-DN1040.

▲ HOLDING BACK THE YEARS: Sony's 2013 STR-DN1040.

Even more amazingly, very little has changed on the back either (see overleaf), at least since the DN1080, other than moving the two Wi-Fi antennas further apart and resituating the IR trigger in/outs. Construction seems the same: the main volume knob remains a surprisingly light plastic.

We suppose the design stasis saves a chunk on tooling up, but it does leave the Sony lacking the new aesthetics that mark out the latest receivers from, say, Anthem or Marantz. We doubt anyone will look at your new Sony receiver and say 'wow'.

But then we would always prefer that people *listen* and say 'wow' if possible, so let's move on and consider the things that have changed internally.

Before we get to the magical extras, however, let's nail down the basics. Seven channels of power are variously quoted (see below), and are moderately versatile in the possible allocation of the last two channels, as mentioned above.

What is this power? More and more receivers are using cool-running Class-D type amplification; there was no clear information we could find from Sony, and Sony's Australian distributor Audio Active was also unable to tell us. Given this is no ground-up redesign, we'll put our money on Class-AB amps.

Upgrades on the previous model include a new power supply section, with that redesigned transformer aiming to lower distortion and improve sound quality, and new power supply capacitors developed by Sony to improve the stability of the improved power supply.

"We went from a monitoring mentality to full immersion, with much over-the-shoulder zooming of X-wings and wonderful pumping of ion cannon..."

The preamplification stage gets a new Sony-exclusive IC which is independently connected to each individual amplifier channel; the digital section is processed at 32-bit (with native handling of DSD in a Direct mode), and with DSP operations benefitting from being condensed from the previous three chips to just one. The DAC gets an improved analogue power supply and a new analogue output filter circuit (using a JFET and op-amp) which Sony says improves the noise floor.

Inputs and formats

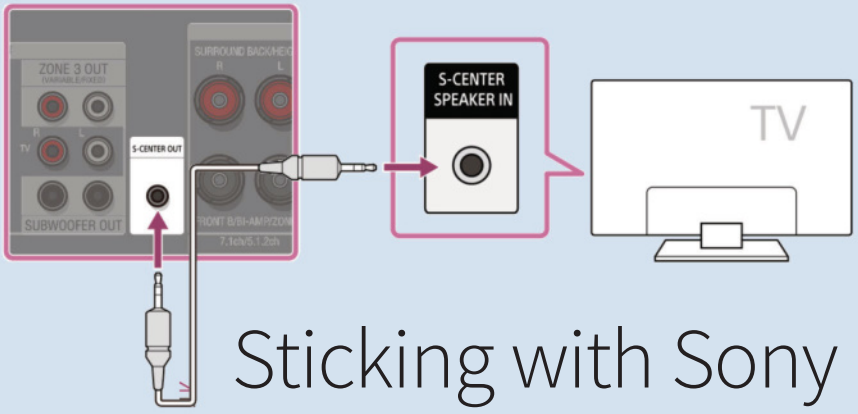
While the HDMI standards are brought up to date, the input count is identical with the previous STR-DN1080: six HDMI inputs, though with two of them now compatible up to 8K/60 or 4K/120. The receiver can decode both the ubiquitous Dolby Atmos and the rarer DTS:X (from disc only these days, unless Disney+ delivers on vague promises for DTS:X for IMAX Enhanced movies).

Alongside those immersive sound formats you'll see Sony's 360 Spatial Sound Mapping mentioned prominently in all the publicity for this receiver; indeed it leads the naming rights for the product — Sony calls the STR-AN1000 a "360 Spatial Sound Mapping 8K 7.2 ch AV Receiver". But this is not a sound format; rather it's a way that Sony processes the audio.

This involves decoding a soundfield first for an idealised set of imaginary speakers, and then mapping your actual speaker layout onto that perfect layout. It's not a gimmick, but after a deep dive into this tech for a previous product (that wondrous HT-A9 system), we've concluded that its main purpose is to correct for poorly positioned speakers.

In the case of this receiver, it operates directly in cahoots with the calibration system. So if you have well-positioned speakers in the first place, 360SSM is nothing much to get excited about. But if you're cursed by your architecture into having one rear higher or wider than the other, Sony's mapping may prove exceptionally useful in correcting for such layout issues. We've gone into more detail in the panel overleaf.

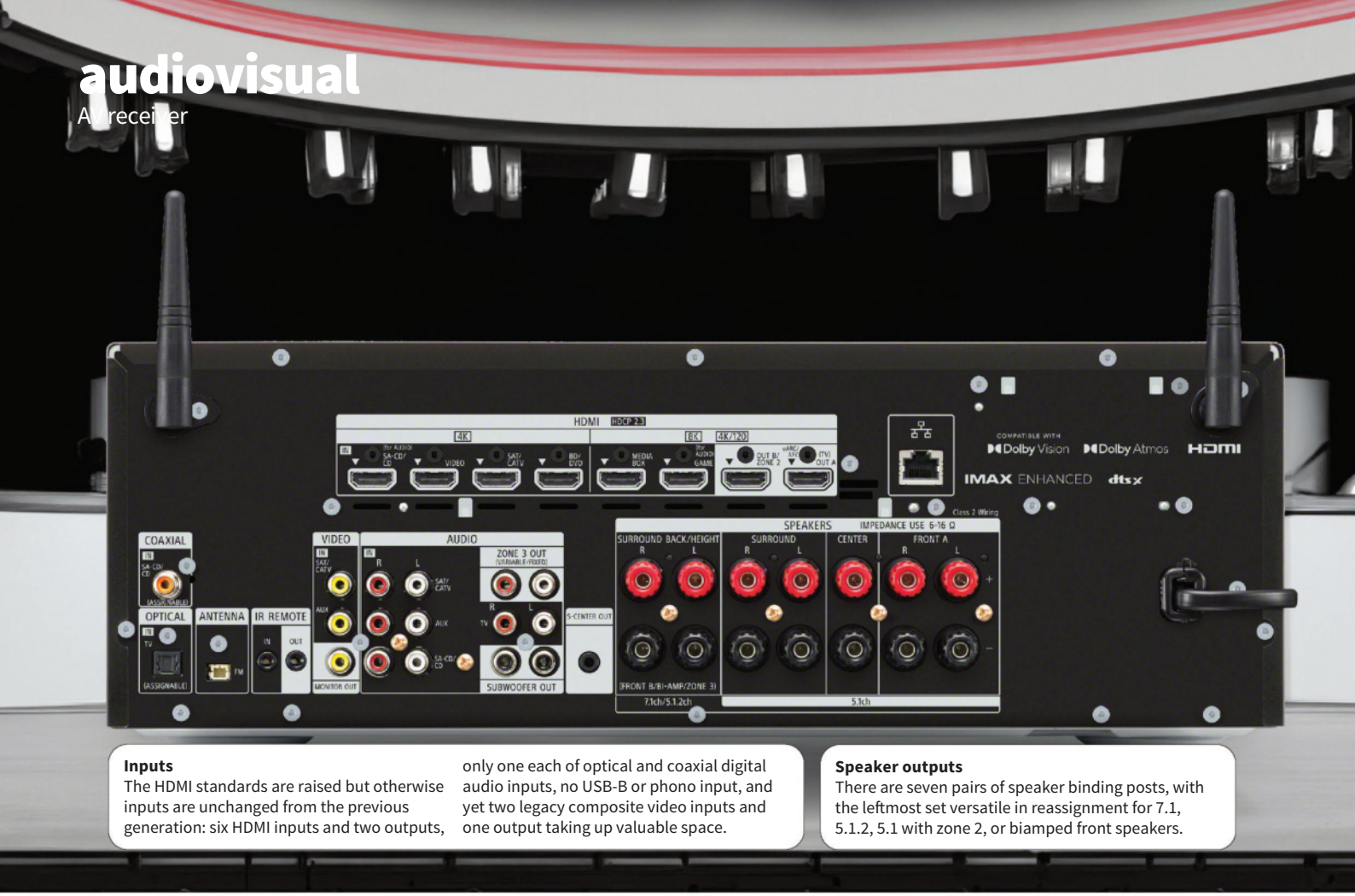
Plenty of bang up-to-date HDMI connections available, then. Additional inputs for audio components are relatively sparse: just one coaxial digital and especially just one optical input will leave some people short, especially with no USB-B for computer in, nor USB-C. There's a USB-A socket on the



Sticking with Sony

Sony has always encouraged its fans to stick within a Sony world, and of course there are benefits in pairing this receiver with a Sony TV. And this is a unique difference — what other TV manufacturer selling to Australia also makes its own surround receivers?

Aside from the ability to use the Sony TV remote for things like soundfields as well as simply volume control, one unique benefit is Acoustic Center Sync, where you can use a Bravia XR TV as your centre speaker "to create an incredible sound-from-screen experience". Well yes, but hardly a tonal match for a decent pair of front speakers — an object passing from left to right will be squeezed tonally if it goes through a TV as centre channel; a proper centre speaker will also do a better job of locking in the dialogue, and your brain will attribute it to the screen anyway. So this seems more an useful option to save you money, rather than improve your sound. We didn't have an XR TV with which to try this, so we can't comment on the result.



Inputs
The HDMI standards are raised but otherwise inputs are unchanged from the previous generation: six HDMI inputs and two outputs, only one each of optical and coaxial digital audio inputs, no USB-B or phono input, and yet two legacy composite video inputs and one output taking up valuable space.

Speaker outputs
There are seven pairs of speaker binding posts, with the leftmost set versatile in reassignment for 7.1, 5.1.2, 5.1 with zone 2, or biamped front speakers.

front for sticks but none on the back for more permanent USB storage.

Most glaringly last-decade of all are two legacy yellow composite video sockets, each paired with one of four RCA analogue audio inputs. Useful for old-timers, perhaps? Except that video entering this way is not converted to HDMI, and is available only from the receiver's yellow analogue 'monitor out' jack.

It's almost bizarre that these sockets haven't been ditched in favour of more optical inputs or a phono-level/switchable input; these might bring the input section rather more convincingly into the 2020s. The only physical addition since 2017 is a minijack socket marked 'S-Center' for use with Sony TVs (see 'Sticking with Sony' panel).

But perhaps younger users will not be using socketry at all these days. There is Bluetooth, which we often suggest you use as a convenient last resort only. But here, being Sony, there is the LDAC Bluetooth codec available for those whose Android phones support it, which is most of them, one way or another. In ideal circumstances, which at home you might enjoy, LDAC can sustain bit-rates of 990kbps over Bluetooth. That's enough to deliver completely lossless CD quality, though not for anything high-res. Yet the receiver uses the Japan Audio Society's HI-RES WIRELESS logo. If this is used in relation to LDAC Bluetooth, then we think it is used incorrectly (more on this next issue). But perhaps it refers to network streaming, or the Chromecast on board: AirPlay 2 also.

Oh, and there's an FM tuner inside, though no DAB+, which again makes the Sony look a little dated (or 110V-market-centric) in its provision. We should be grateful for FM, perhaps, as the similar but different 'European exclusive' TA-AN1000 has no radio at all and is therefore called a home cinema amplifier over there, rather than an AV receiver.

Two subwoofer outputs are available but not, we think, differentiated, so this is 5.1.2 channels, rather than 5.2.2, no matter how many subwoofers you may be using.

On the website the headline power is 120W per channel, but that's measured into 6 ohms at 1kHz and allowing 0.9% THD. The manual offers three different numbers: that 120W figure is quoted as "stereo mode output power", the "surround mode output power" mysteriously rises to 165W with the same qualifying figures, while a more useful "Minimum RMS Output Power" comes in at 100W (into 6 ohms, 20Hz-20kHz, THD 0.09%). But do you have 6-ohm speakers? Probably not, so with 8-ohm speakers the power figures will drop into double figures. The usual conclusion: it's hard to use power figures usefully for anything much — better to have a listen and see what it can do.

Setting up

Unboxing and setting up was a fairly quick affair, slowed only by the fiddliness of bare-wire insertion into the speaker output binding posts, which are solid enough, though plastic, and very tightly spaced. Banana plug insertion for our front channels was far easier! But the back panel is all clearly labelled, making connections an easy job even without reference to the provided manual (and bonus points for giving us a printed manual in the box, a rarity these days).

Once connected and powered up, we investigated the menus. You select your speaker set-up, and you can do this for two different configurations by using the two available speaker presets. You can't copy information from one to the other (or we didn't find a way), so you'll have to create each one from scratch, or use the calibration system to create one of them automatically.

The user guide encourages immediate use of the microphone and automatic calibration system, but we did it all manually first, to ensure we heard the receiver at its cleanest.

A side point: there's no web-browser menu access here to play with settings on a laptop. You can log in to the IP address using a browser, revealing a list of details and settings, but nothing can be changed via this path apart from, curiously, the unit's AirPlay name.

Listening sessions

The rise of movie streaming has brought many delights to our screens, but these days it's not only movies that come with speaker-stretching Atmos soundtracks, it's also increasing numbers of premium TV shows from those services which support the format (Netflix, Stan, Prime, AppleTV+, sometimes YouTube). On Netflix, if you have

your system up loud when you start *Dune*, you'll get quite the jump at the short initial snatch of Sardakaur language, which is delivered in a multichannel vocal effect that uses the subwoofer quite as much as the centre channel. Once we recovered from that, the subsequent battle scene thundered through the Sony to our 5.1.2 system, well-knit and clean on the detail, well-directed and dynamic on the explosions. The sound of the sand thumpers was so rich we could feel them in our gut even after they'd moved off the screen. The wide-panned thrum of the dragonfly-inspired ornithopters is a magnificent example of the sound designer's art, and was fully revealed by the Sony's processing and power.

When Atmos is used entirely perfectly, it simply emphasises dramatic effect. We couldn't tell you anything about the sound design in the mindbending *Joan Is Awful* episode of *Black Mirror*; we didn't notice the sound at all, because our jaw was on the floor and our brain otherwise occupied. Like real hi-fi in action.

At other times, you can sit back and applaud. *Formula 1: Drive To Survive* S5 not only comes with an Atmos soundtrack that thrills to the core, it has some highly active Atmos music, with the height channels more active than any other show we've heard, partly because the music is kept entirely away from the centre-channel dialogue. So in S5 E7 they're not only messing with the 140dB whines of F1 cars, there's some fantastic thunder and rain, and a thrilling hemisphere of music blipping and beeping all over the place. It's almost exhausting.

And yet the Sony can do more. We hadn't yet pressed the magic button.

The magic button

Then we pressed 'Pure Direct'. We hadn't done this previously because the manual had said it blanked the screen as part of its efforts to maximise signal purity. But duh, that's not the big TV screen: it blanks the receiver's little display.

And when we pressed the Pure Direct button during *The Empire Strikes Back*, it was like experiencing a different system. It gave more weight to the rears, more weight overall, a significantly superior sound even despite an old-fashioned LFE soundtrack which only ramps up the low-end during the big stuff when John Williams is blasting away in the background. Happily there's plenty of that. These latest UHD 4K discs combine impeccable visuals with full Atmos soundtracks, and whatever bits the Sony turns off while playing it, well, clearly we don't need 'em. We went from a monitoring mentality to full immersion, with much over-the-shoulder zooming of X-wings and wonderful pumping of ion cannon during the 'battle in the snow' sequence, off in the distance, a marvellous thud in an acoustic spread wide. When Chewbacca is imprisoned in the Sky City (1:29:17) and tortured by soaring sirens, they fill a high void above, absolutely high, one of the best Atmos height effects we've enjoyed. We lived in Pure Direct thereafter for movies, nearly always for music. Why wouldn't you?

We had various paths to play music: AirPlay 2 and Chromecast from streaming apps, discs playing on the UHD Blu-ray player, and file playback via our computer — both of these last plugged into the TV and playing music via HDMI ARC to the receiver. And with an AppleTV 4K plugged directly into the Sony, we could use either Apple Music and Tidal apps to play both stereo and Atmos music mixes. The Sony impressed with both.

Its default two-channel delivery was to upscale to all available speakers using some Dolby surround algorithm — and surprisingly we found this non-purist approach extremely enjoyable. Streaming Judie Tzuke's 'I Am The Phoenix' album in stereo on Apple Music (we have the vinyl but, hey, no turntable input here), we were hard-pressed to choose between this immersive presentation and the straight stereo — the purer stereo was punchier, clearer, more original, but heavens, how room-filling and believable was the artificial surround field. Only on a simple song like *Hell Or Waters High* did the piano frequencies become spread strangely around the space, betraying the artifice of this approach.

Nevertheless, if it's stereo you're after, this is no weedy Class-D receiver sound; this is hi-fi stereo with precision and punch. It's also easy to select

360 Spatial Sound Mapping technology

We examined Sony's 360 Spatial Sound Mapping tech in some detail back when we reviewed the company's magnificent (and subsequently award-winning) HT-A9 system, which uses a mini AV receiver and four wireless speakers, subwoofer optional but advisable. That system makes the same claim of generating "multiple phantom speakers all around you so cinema lovers can experience every breath, step, and word as if you are inside the film".

Firstly, this is not to be confused with Sony's music format 360 Reality Audio. No connection. Rather this is a way of presenting an ideal soundfield even if your actual speaker positioning is a bit whack, as they say. Not all rooms allow perfect siting of surround and height speakers, and Sony's 360 Spatial Sound Mapping aims to correct this, delivering the sound as if coming from a perfect array of speakers, as shown in the company's whizzy diagrams and vids of sound pulsing from these 'virtual' speakers. With the HT-A9 system "up to 12" phantom speakers would be virtualised; with the STR-AN1000, the number varies according to your layout.

What exactly is it doing? Sony Australia talked us through the concept of synthesis monopoles, which they claimed to be the crucial tech behind the idea of their phantom speakers, notably Sony's patent (US 9749769 B2) from 2017 (filed 2015), for a method developed in Berlin; you can Google the research by one Franck Giron, who subsequently began working for Sony in Stuttgart.

The patent is technical, but fairly clear. Giron's method is to consider each element in a sound mix as a discrete 'target monopole', similar in concept to the idea of 'objects' in Atmos soundtracks. The target monopole is then placed in a 3D space using a set of predefined 'synthesis monopoles'.

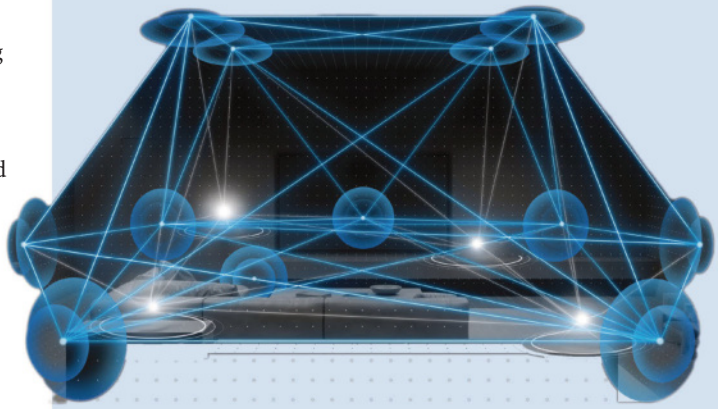
But the patent's 'synthesis monopoles' are not phantom speakers, but actual physical speakers, working together to map the individual 'target monopoles', whether a central singer in a stereo soundstage, or a 3D object in an Atmos mix.

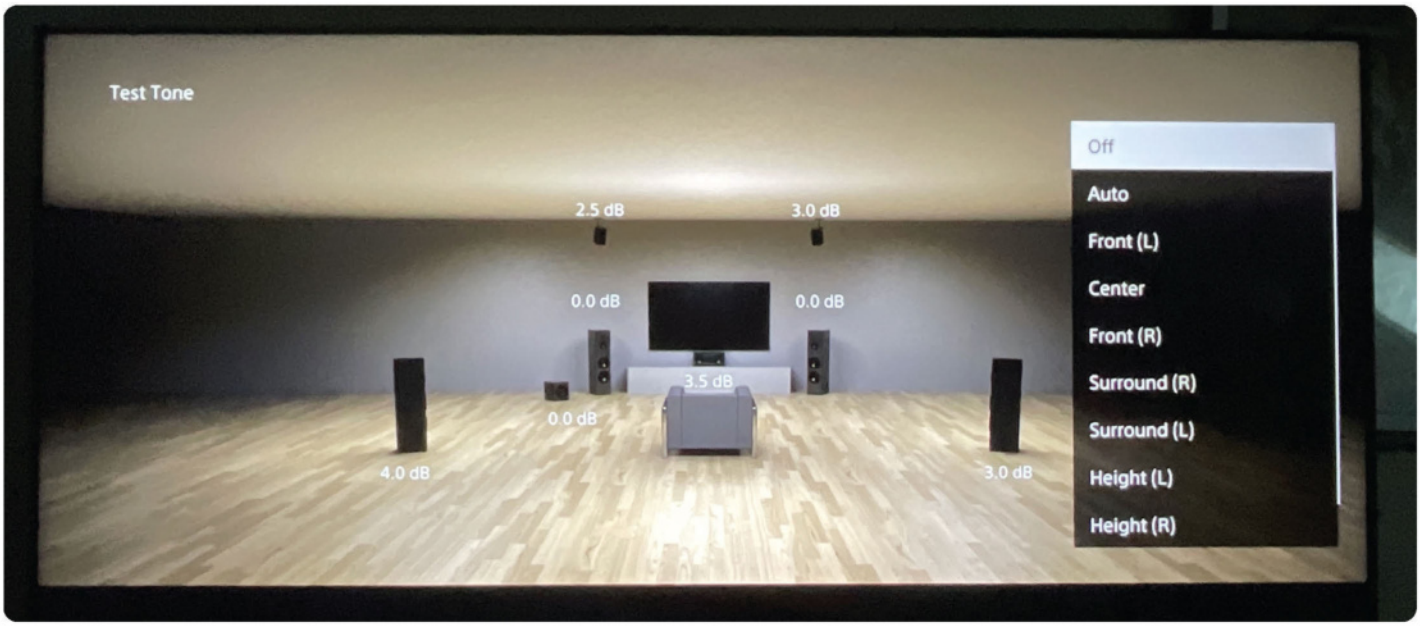
The idea of using an ideal phantom system as the basis for calculations seems to have come later. So we think that the system first imagines the ideal 'phantom' speaker system, and calculates how incoming Atmos beds and objects should be mapped to that ideal system. Then it overlays the information on the actual speaker positions, gleaned during the calibration process, to re-map the ideal system to the actual speaker positions.

We can't see any advantage in the extra processing stage unless your physical speakers are in the wrong place — i.e. non-ideal positions.

Which is why we conclude that 360 Spatial Sound Mapping is more about fixing poor speaker positioning than to gain any audio benefit. It will be very useful, of course, if positioning the speakers sensibly is a problem for you. If you start with well-positioned speakers, we doubt that 360 Spatial Sound Mapping does anything much fundamentally different or better in rendering the objects and beds of an Atmos soundtrack than do other Atmos systems.

This should not be confused with Sony's DCAC IX calibration, which establishes speaker distances, phase and frequency correction. The Sound Mapping works on top of that to idealise speaker positions. It's solid and potentially useful stuff; our point is that a well-positioned speaker system won't much benefit from it.





ON-SCREEN SET-UP: Whether setting up manually or with the Sony's auto-calibration, the menus and on-TV graphics lead you through the process very well.

between the two — that 'Pure Direct' button strips you back to pure stereo — so we advise you to play and compare your pleasure levels.

Of course if you want music from all speakers, you don't need upscaling: just call up Spatial Music on Apple, or Atmos on Tidal. We are still loving Atmos music played on a full system, and Apple's championing of it has seen levels of content flooding forth that put Sony's own 360 Reality Audio firmly in the shade. Buckets of new releases, but also Beatles albums, George Harrison albums, 'The Dark Side of the Moon'. Despite the compression involved in streaming Dolby Atmos, the Sony made the Atmos mix of this 50-year-old-classic sound so thrilling it was like listening for the first time all over again. From the pulsing opening heart beat, the mad surround chimes opening *Time*, all the way the Sony receiver was opening up detail and spaces in the mix, such as a remarkably clear isolated acoustic around the central snare on *Money*.

Internet-streamed Dolby Atmos, whether for movies or music, is heavily compressed, so it's still true that for best multichannel performance you should return to discs. We have various Atmos discs, and this was the system on which we first played Morten Lindberg's 2L disc, 'An Old Hall Ladymass,' which elicited such rapture that we can thoroughly sign off this receiver as that great rarity: an AV product which can make great music too.

We also pulled out Blu-rays and DVDs with high-res DTS music mixes for a magnificent session. Side two of 'Close To The Edge' by Yes in 5.1 DTS 24/96 is a thrilling reinvention of these impossibly complex compositions, impeccably separated, bright and shiny in every corner, Jon Anderson isolated in the centre channel, harmonies in the rears. Up and up we turned it, and the Sony followed without a whiff of restraint.

If you have a less than perfectly matched centre channel, it can be helpful not to use it for music; we often adopt a 4.1.0 system with phantom centre for 5.1 music, or 4.1.2 for Atmos music. We also like to set up a 2.1 configuration to play stereo music with the subwoofer engaged.

Here the Sony's limit on speaker presets was a limitation — two only, and each one built from scratch (unless calibrated, see opposite), rather than copied and tweaked.

There was one other change we'd have liked to try — some receivers offer front L and R pre-outputs under the receiver's volume control, so you can use better power amps for stereo. We often end up using receivers in that way, able to blend top-level stereo with excellent surround. But it's not an option here.

Still, as we moved from Yes to the Beatles' 'Love' DVD, again in 5.1 DTS 24/96, we were having too much fun to be playing with the settings. We just let it rip, and it ripped good. We keep mentioning this as one of the best surround mixes ever (~$20 on eBay, folks).

If you're not playing such wonderful files and are, for some reason, stuck with lower bit-rate sources, do not despair: Sony offers its DSEE Ultimate (Digital Sound Enhancement Engine) to upscale compressed digital music files in real time. And we know from personal contact with Sony engineers that its best golden ears consider its DSEE upscaling from files as low as 256k to produce results that can only very rarely be distinguished either by listening or measurement from genuine high-res audio. Sounds impossible, we know, but that's what they said. And since they've now added Edge-AI (Artificial Intelligence) to the process, it must be even better.

Calibration

There's a weird little curved stereo mike (see right) included in the box; it's an interesting variation to have clear stereo markings, not the usual mono puck, so more complex results might be compiled, provided you can position the mike accurately at all times.

The system is called Sony's Digital Cinema Auto Calibration IX (DCAC IX), and it requires this microphone to be positioned at ear height in the main listening position. The solid plastic mike stand supplied is only eight inches, so unless you're very very small indeed, this is unlikely to hold the mike at the right height without loading your chair with boxes, books and milk crates. In a moment of rational thinking we realised that a spare speaker stand would be just about the right height, so moved the chair and used that.

We plugged in the mike using its long cable to the receiver's front-panel socket, and pressed the 'Auto Cal.' button on the remote. It was soon making tones and dings, but there was no 'on-TV' information about what was going on, only one-line messages on the receiver's ittle display. We knew from the manual we had to switch the position of the mike from the top of the stand, where it faces front, to the bottom of the stand, where it faces sideways, so one of the two mikes then faces forward, one back. (This is great thinking, as it allows the calibration to easily calculate in all dimensions.)

But using the on-receiver display, we couldn't work out when to move the mike; we thought we'd finished, then saw a bunch of displays saying things like 'Engineer', which under normal circumstance might indicate that you're somewhere in menus you shouldn't be! So we tried to get out… and before we knew it, the system started calibrating all over again.

Then we remembered the 'Easy Setup' options we'd skipped when originally setting up; we went back, and found that this menu system does walk you through everything with lovely pictures on the TV(see above left), every stage clear and easy. We started a new preset for this, re-entering our measurements, which include unusual things like how far away the screen is, the height of its centre and the height of your listening position. Two sets of tones and we were nearly ready to play — but first we were offered three options of what kind of reference we calibrated to (see inset above right). The first was 'Full Flat': this lightened the sound a little, correcting a perceived boost in the bass, but we preferred the Pure Direct presentation. The third choice is 'Front Reference'; matching all speakers to your main left and right speakers: interesting! It worked rather well, leaving the fronts alone and slightly clarifying the rears: barely noticeable with movie soundtracks but a clear and valuable improvement with Atmos music.

The middle option is that 'Engineer' we'd seen pop up worryingly on the receiver display.

Turns out this is an option to match the characteristics to the Sony listening room in which this product was developed. Wow! Also wow when we did it; we were hard pressed to choose between this and Pure Direct — the latter a little better defined, but the Engineer setting having a bass response that seemed to spread more widely, like the room effect that the Canadian 'Athena' project identified as being perceived as 'better'. We'd also say friendlier.

So here, despite our usual reticence to muck about with a carefully curated signal path, we must say we enjoyed Sony's DCAC IX, and recommend that you give it a go.

One interesting variation here is that here you can turn the 360 Sound Mapping on or off; this wasn't possible on Sony's HT-A9, and this was explained to us as because it was fundamental to the whole way the system delivered its soundfield. But here, Sony must expect a lot of people to have a well-positioned set-up, so it's just an option, selected or deselected using the 360SSM button on the remote.

For our system it was a definite 'no': it threw the positioning all over the place, for one thing, and made things sound strangely phasey for another. It took front channel drums on the Floyd Atmos and moved them nearer the rear; it took a strong central vocal and made it a thin spread-out one. It was mildly horrible, to be honest. This makes it even more likely that the 360 Mapping scenario is primarily about correcting for poor speaker positioning, and should be otherwise avoided.

We saved 'Engineer' and 'no calibration' to separate presets on the receiver, so we could easy switch between them. Though we never did find out how to reach anything except preset 1 via the remote; it seemed to require the onscreen menu. On the whole we just went back to Pure Direct, which (we think) also turns all calibration off. Pure Direct is your friend.

Any problems? Old-fashioned inputs aside, only one, and we can't necessarily pin that on the Sony. When we used it with a particular Google TV, an HDMI handshake war commenced. Whenever we selected a receiver input, say our AppleTV 4K, it would go there for a moment, but then return to HDMI ARC. We'd have to mash the input key on the remote madly for a minute or so as it flashed back and forth across these two inputs. We could fix this by turning off the CEC control in the TV, but that meant we couldn't use the TV remote to control receiver volume, which is a convenience we didn't care to lose. This didn't happen with two other TVs, including one from the same company but a Roku model, so maybe we should blame this on Google. Just letting you know.

Conclusion

Sony's previous midrange receiver was brilliant. This one is undeniably more brilliant, especially on the inside, and so the performance it delivers. The outsides — front and rear — are long overdue an overhaul.

So meet the new boss. Even though it looks exactly the same as the old boss. +

SPECS

Sony STR-AN1000 $1699

Inputs: 6 x HDMI 2.1, HDMI eARC, 2 x composite video, 1 x optical digital, 1 x coaxial digital, 4 x RCA stereo, Bluetooth with LDAC, antenna in, IR in, FM tuner, Ethernet/Wi-Fi, AirPlay 2, Chromecast, Spotify Connect, works with Sonos, USB-A (front), calibration mic in, wireless speakers options

Outputs: HDMI (with eARC), HDMI Zone 2, composite video 'monitor out'', zone 3 audio, 2 x subwoofer out, S-Center out, IR out, headphone out (front), speakers out (14 binding posts)

Power: 7 x 120W into 6 ohms (1kHz, 0.9% THD), 7 x 100W into 6 ohms (20Hz-20kHz, 0.09% THD)

Dimensions (whd): 430 x 156 x 331mm

Weight: 10.3kg

Contact: Audio Active

Telephone: 03 9699 8900

Web: www.sony.com.au

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Energy bar

TCL's well-priced soundbar and subwoofer combo seems simple but is in fact loaded with a great many EQ options. Once we'd worked them out, it proved an energetic performer.

SUMMARY

TCL P733W
Price: $449

+ Good sound for the money
+ App control
+ Price

– Too many EQ options
– Not the best for music

On the face of it, TCL's P733W is a pretty straightforward soundbar and wireless subwoofer combination. The soundbar is 90cm wide, and operates in three-channel mode, so with front-facing drivers on the left, right and in the centre, but with no height drivers, nor any that are angled sideways.

Then there's a sizeable wireless subwoofer standing 36cm high, featuring a rear-firing 6.5-inch driver and port, which should make for some significant bass reinforcement, especially if placed close to the wall as shown in the picture above.

The remote control is nicely simple as well — and yet it has three buttons which together control a level of tweakery that promises something beyond the bar's apparently straightforward delivery.

So let's see what this seemingly straightforward TCL soundbar and wireless sub combo delivers.

Build & facilities

The bar is 90cm wide, which is about the width of a 42-inch television, so it'll sit within the dimensions of any larger model, although TCL curiously describes it as being suitable for 55-inches and up. It's 95mm deep at the ends, but with a deep rear cut-out in the middle for the connections bay, reducing the total volume of the bar significantly, since it is a full 90mm deep for two-thirds of its length, but with the central 30cm only 40mm deep.

Its crucial dimension of height is 68mm — crucial because for many users it will sit on a benchtop in front of a TV, and 68mm should ensure it stays below the screen height and the IR sensor of all TVs except those which deliberately slouch right down to table level. This soundbar visited at the same time as the Chinese company's C845 Mini LED television (see last issue), which had been the first we recall to offer two different mounting positions for its stand — one low, one high. The P733W proved small enough to fit below even the lower of the two options.

The soundbar can also wall-mount, with keyhole hangers to the rear and a template supplied in the box, along with screws, rawlplugs and, we were pleased to see, unusually good step-by-step instructions in the instruction manual. This full manual is printed and comes in the box with the product — not hidden away somewhere online to be hunted down. Thank you TCL!

The bar's three channels of sound are delivered by a combination of quite large 36mm tweeters and the kind of oval 'racetrack'-shaped drivers which have proliferated in soundbars precisely because of those limitations on height. Here the oval racetrack drivers are 92mm wide and 40mm high, and there are three of them, all facing forward on the front face of the soundbar, one for each channel — dead centre for the centre channel, and inwards a little from each end of the bar for the left and right, leaving room for the tweeters right at each end, with everything aiming forward.

There are only those two end tweeters — none for the centre channel, despite its crucial role in keeping dialogue intelligible.

There appear also to be forward-facing ports in the front of the bar, to the inside of the outer racetrack drivers, again with no matching port for the centre,

perhaps because the enclosure is so much thinner there, although it's not clear whether the bar is internally segmented into three parts, or just left internally as one big open enclosure. While the construction is fairly light, and seemingly plastic rather than wood or aluminium, the top surface is nicely smooth and matte, with five neat flush-fitting buttons on top for power, input selection, Bluetooth pairing and volume up/down.

So all the drivers face forwards, yet one of TCL's product videos shows the centre channel firing directly at the listeners while sound from the outer channels appears to flow sideways, making a semi-circular orbit around the room to reach the listeners from the sides. It's not clear how this sound-bending trick could be achieved from drivers facing forwards only, so this may be mere marketing invention (TCL's European Product Development Director did once refer to his marketing team as "a bunch of carpet sellers"), or this video might be indicating some attempt at psychoacoustic manipulation to create such an effect. After all, there is DTS Virtual:X onboard here, which DTS describes as "*revolutionizing sound bars to deliver immersive tv without extra speakers…*" and that it "*works in any room… regardless of space or acoustic limitations*".

There is also TCL's own 'AI Sonic-Adaptation' room calibration, which includes an unusual feature that allows users to instruct the bar to focus the sound either straight ahead or significantly to the left or right. Judging from another TCL product video, this sound beaming is intended for those inexplicable lounge layouts we often see on renovation shows where sofas don't face the screen and the poor owners are expected to crane their necks sideways to watch telly. We'd advise moving the furniture, really, but for those who can't, TCL's AI Sonic-Adaptation may help.

There is 'Dolby Audio' here — not Atmos, but TCL says that Dolby Audio can also "*create a surround sound effect by simulating the position of different sounds in three-dimensional space*".

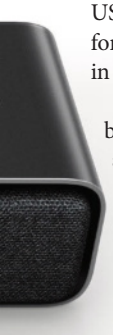
So two paths to potential 'upscaling' of those three channels, plus beam-forming AI. Perhaps not so simple after all! Meanwhile having no upfiring or side-firing drivers does give the P733W the advantage of being suitable to put inside an enclosed TV unit.

Inputs are more straightforward: four in all. Firstly there's an HDMI socket with ARC (Audio Return Channel): the ability to use the HDMI connection to play audio from the TV. If your TV doesn't have an ARC-compatible input (it's usually written underneath one of the sockets), then there's an optical input as fallback, and also a minijack analogue input should your TV not even offer optical. An optical connection has some limitations compared with HDMI, but with only 3.1 channels in play here, those limitations don't matter. Of course if you do use the HDMI ARC connection, the other two inputs could be used for additional audio sources.

There's also Bluetooth streaming (codecs not specified, so we'd guess just SBC, possibly AAC), with its Bluetooth 5.2 profile allowing connection to two devices simultaneously.

There's also a USB-A slot, which is used for firmware updates — because there's no networking on this soundbar to allow online updates (or higher quality Wi-Fi music streaming like AirPlay or Chromecast). The

► The subwoofer with the P733W stands 37cm high, with a non-removable front plate which matches the finish of the soundbar, and with its 6.5-inch driver and port firing to the rear.



USB-A slot can also play files, but only in MP3 format, which should really be a format firmly in the forgotten past by now.

The wireless subwoofer is significant in size but fairly slim from the front: 37cm high, with a footprint of 25 × 22cm. As noted it has a rear-firing 6.5-inch driver, and a rear-firing port too, although there's nothing to stop you pointing these sideways if you position it by the side of your TV table and hard up against the wall.

Despite its size, and perhaps remarkably given the total cost of the system, the subwoofer is attractively finished in a textured black plastic and a kind of hard plastic plate across the front which matches the soundbar finish. This plate doesn't prise off (we tried), and we don't think there was anything interesting underneath.

There are no controls on the subwoofer other than a power socket which can also be used to reconnect the subwoofer with the bar should it somehow become estranged.

Finally you get the nicely simple remote control, which is fairly light and plastic but unusual in having a teeny text display at the top, which nicely compensates for there being no display on the bar itself, other than a line of LEDs. There is also the option of downloading TCL's Home app (sometimes referred to in the manual as T-Home).

Plenty for your money, then — but how's the sound?

Listening sessions

Set up proved very simple: the soundbar and subwoofer are both fairly light, and once both were plugged into power and to a TV via HDMI, we powered them up from the remote control — and sound emerged. Being a TCL soundbar it was unsurprising that this worked perfectly and immediately with a TCL TV that was visiting at the time, but it also worked first time with a Samsung 2021 model which often proves unfriendly with ARC, so compatibility seems good.

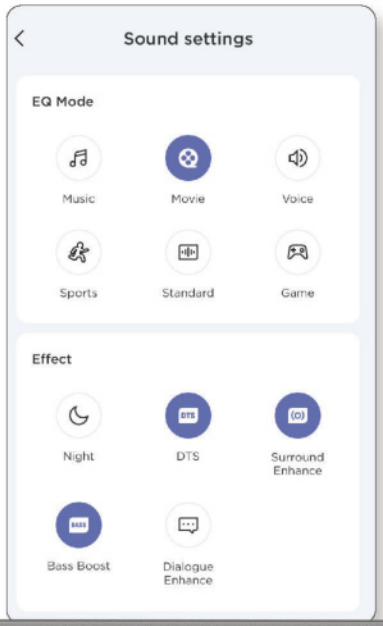
The subwoofer has to be within three metres of the soundbar, according to the manual, though you are also restricted by the short 1.5-metre power cables. An HDMI cable is included, though not an optical one.

We kicked off just using the remote control, and quickly realised there are rather more sound modes that the simple buttonry implies. The options are revealed on that tiny remote screen as you cycle through the 'Mode' options: Standard, Voice (thin and boxy), Music, Movie (bassier, thumpier), Game, and Sports.

But there's also an 'Effect' button which can add to each of those: 'Light', 'Bass Boost', 'DialEnhance' (for dialogue, as opposed to voice?), 'SurrEnhance' (but no surround?), 'Night' and 'DTS'. Most of these toggle on or off, but the 'Light' effect instead provides a choice of three levels.

That's a whole lot of combinations (48 in total), though this is confused by the manual, which merges the different Modes and Effects into a single list of 'Effect Options'. It also describes 'Light' as 'Default Light Color', and has three different options of 'Default Light Color'... eventually we realised this was changing the colour of the LEDs on the bar, and had nothing to do with sound...

We turned to the Home app (right), which is much to be recommended, as it shows you all these settings at once. We were surprised to find that using the physical remote we had inadvertently toggled on bass boost, DTS, and 'surround enhance' all at the same time. It turns out each effect can be toggled on or off, and/or used in combination. This would raise the sound mode and effects combinations still further!



But while trying to work out which of these might offer the purest sound, we realised that the Modes are all the same, and each simply preselects different combinations of Effects. The Movie Mode turns on DTS, Surround Enhance and Bass Boost (screenshot below). The 'Voice' Mode switches on DTS and Dialogue Enhance. Both the Music and Standard options engage only DTS. You can change these effects — but when they're all off, then all EQ Modes sound the same. (So we conclude that 'Standard' and 'Music' are actually identical settings.) This brings the options count way back down, and without the formerly mysterious Default Light Colors (which don't appear in the app at all), we make it a mere 32 variations in total.

There are also straight bass and treble controls to add on top (usefully on sliders in the app). And there's that intriguing 'AI Sonic-Adaptation' room calibration. The app walks you through this, using the microphone in your phone, which is tricky because phone microphones vary widely. However you first put your phone close to the soundbar, and the system then calibrates the mike using white noise. Neat.

You then go to your listening position — more noise, and you're done.

And this is when you can store different AI settings. We were

Control – remote or app
The remote looks simple, though the EQ options are deceptively complex, and there's a nice bonus in a tiny text read-out at the top to show what you're doing. The bar itself has no text display, only lights. The best clarity of control is definitely provided by TCL's Home app.

Inputs
HDMI ARC or the optical digital input will provide best quality from your TV. There's also a minijack analogue input and a USB-A slot for upgrades or file playback (MP3 only), plus Bluetooth streaming.

▲ The simplicity of the driver layout means the bar can sit inside cabinetry without constricting upfiring or side-firing speakers. TCL's marketing still shows sound going sideways (image on TV).

intrigued by the ability to 'beam', as shown in TCL's video, where there's a 'Room calibration' menu with options for left side, middle side, and right side. We couldn't find that menu in the TCL Home app, so we instead made three different AI Sonic measurements, one from the listening position, one from a desk far to the right of the TV, and one from the kitchen far to its left. Then we tried them out. All three were identical, and also sounded the same as having the AI off. From this we conclude that either the system does nothing, or it wasn't working.

So we turned AI Sonic off (just in case) and felt our way through the sound options to the bar's best performance. For anything approaching deep bass you definitely need either the bass boost or a bass slider adjustment engaged. The DTS button is a chalk-and-cheese change, making the sound larger, fuller and wider. The Movie setting adds Surround Enhance to this, a bit odd when there's no real surround and DTS is already virtualising some, but its effect was minimal, so we left it off.

And listened.

For the money, the P733W quite impressed us. We kept the subwoofer central and left the bar on casual duties to warm up; it clearly had a slight artificiality to the sound compared to our normal (far more expensive) reference standmount speakers, with a little sibilance on voices, a little tin-can edge to the tone. But it sounded better as we turned it up. One of the first times we used it loud was for an episode of *Break Point*, the Netflix tennis doco from the makers of *Formula 1*..., and we were impressed by its ability to deliver far beyond the abilities of any built-in TV speakers. The subwoofer showed its moderate depth in the pulses of the music soundtrack and during the bass drops the show uses to build match tension.

We had worried that the omission of a tweeter in the centre channel might hamper intelligibility, but there was no problem in that regard; voices remained well separated, with commentary overdubs kept clear above the roar of the Rod Laver Arena in E02, and with a nice sense of space between narration or dialogue and the wider stereo staging of the arena crowd. The end tweeters assisted in creating enough width to match the 75-inch TV we were using, loud enough for a dramatic presentation without entering any obvious distortion.

Only *just* loud enough, sometimes, though. We found ourselves right at the end stops for volume, sometimes before we had quite enough. We wanted more level than the bar could offer for the soft sounds of nature that open *All Quiet On The Western Front* (Netflix, Atmos); this is admittedly a trick from the sound design team to make you turn it up and then be pummelled by the explosions shortly to come. The TCL bar and sub did bang these explosions out at some level and with some degree of steering, if not with much real slam, and again we were still at full volume, with Movie mode (DTS etc), engaged for extra depth (nicely notable in a particularly thuddy explosion at 19:50). So while it's a big advance on TV speakers, this is perhaps a bar to consider for a small- to medium-sized room, not a large one where its energy levels will dissipate.

There was, we should note, no surround effect, no super-wide effect as in that TCL product video. The 'DTS' effect certainly beefs things up and seems to open up the fairly weedy basic sound, but it didn't, for us, virtualise anything amazing beyond the confines of the soundbar. When we ran Morten Lindberg's 7.1.4-channel ID (now streaming on Apple Music and Tidal) the rear and height channels seemed to be simply added to the respective left and right channels. And we wouldn't expect more of a three-channel five-driver bar; the fold-down happens elsewhere. It just delivers a fairly clean and enjoyable large sound.

We spent some time playing music, both by Bluetooth and from apps on the TV. We realised quickly that with no effects engaged, stereo music doesn't go to the subwoofer at all, leaving things very thin indeed. Hence even the 'Music' (or 'Standard') mode engages DTS to expand things to the full driver complement. Vocals were still rather pinched, made nasal; complexity in group harmonies was squeezed. Overall it's not a soundbar we're able to recommend for music listening, other than background use.

Conclusion

This bar has limitations: you should expect so on a full-size product at this price. But it has easy compatibility and plenty of options to achieve a large and supported sound that lifts entertainment above TV-speaker sound. +

SPECS

TCL P733W $449

Power: 7 x 100 watts (8 ohms, 20-20,000Hz, 0.06% THD, two channels driven)

Inputs: HDMI ARC, optical digital, minijack analogue, Bluetooth

Drivers: 2 x 36mm tweeters, 2 x racetrack (92 x 40mm); 1 x 6.5inch woofer (subwoofer)

Configuration: 3.1 channels

Bar dimensions (wdh): 900 x 98 x 68mm

Subwoofer dimensions (wdh): 220 x 248 x 365mm

Contact: TCL Australia

Telephone: 1300 738 149

Web: tcl.com/au

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Designed and Engineered in Poland

Optoma L1+
4K UST projector

Fitting in nicely

Optoma delivers the smallest ultra-short-throw 4K projector yet, and its compact size doesn't limit its performance.

Traditionally, projectors and TVs have stood apart due to inherent differences. Projectors necessitate cumbersome installation, either on the ceiling or within the room, accompanied by the arduous task of wiring long HDMI cables back to a source. Projectors lacked built-in sound, so a bulky AV receiver was needed for audio delivery, and as an input hub. Projector bulbs required regular replacement, while TVs just lasted forever. And when the smart TV revolution came along, TVs became ever smarter with apps and internet connectivity, while projectors long remained technologically dim.

That has all changed in recent years, and Optoma's latest L1+ shows precisely how much. It does not require cumbersome installation — this is an ultra-short-throw projector designed to be benched close to the wall shining up, rather than going on your ceiling or somewhere at the back of the room. The L1+ fits in more like a television.

With three HDMI inputs, it rivals the connectivity options found in many televisions as well, while there is no AV receiver required, as it has a sound system built in — which, being at the front of the room, makes a whole lot more sense than sound systems built into projectors that go behind you.

Bulb replacement? Not here; the Optoma has a four-LED light source which brings advantages in colour and brightness, and is also expected to provide 30,000 hours of operation — that's three hours every day for 27 years, or 10 hours a day for eight years.

And it's a smart projector in terms of apps and streaming, thanks to the inclusion of a third-party Google and Netflix-certified Android TV dongle — (yes, Netflix, which has been a rarity on smart projectors).

All in all, then, the Optoma L1+ projector is no dumb light box; it takes on all aspects of a modern smart TV (except a TV tuner), while still bringing projection's killer differentiator — truly bigscreen entertainment.

Build & facilities

Some ultra-short-throw projectors are pretty bulky; the L1+ is surprisingly compact at 40cm wide, and even more importantly only 32cm deep, an important dimension for USTs, as we'll see. That means it has less than half the volume of, say, Hisense's lowest-tier Laser TV console, so that's a significant advantage in fitting into your lounge. Optoma actually claims this to be the most compact and lightest 4K UST projector on the market at the time of its release.

It looks nice enough in moulded plastic with a fabric frontage over its speakers, and a classy gold power button. But it also has beauty of a different kind, being built with 50% post-consumer recycled materials to keep the environment in mind, and 99% recyclable packaging too. It's an eco-sensitive attitude which continues into the L1+'s power saving modes.

While the L1+ is designed to provide everything you need in one box, it is also versatile. It has its own sound system but it's easy enough to add an external system thanks to the optical audio out, or even the stereo minijack audio out, although here there's no HDMI eARC option provided, as is available on Optoma's

SUMMARY

Optoma L1+
4K UST projector
Price: $2999

+ DLP 4K resolution
+ Good performance at the price
+ Nicely compact unit
+ AndroidTV with Netflix
+ Good gaming specs
– Built-in sound mediocre
– Ambient light washes out

higher CinemaX D2 UST projector. There are two HDMI inputs on the back, and a third mini-HDMI inside for the smart AndroidTV dongle. The USB-A slot can't play media, but provides handy power were you to plug another dongle, such as a Chromecast, into one of the rear HDMI sockets.

And while you don't have to ceiling-mount the L1+, you certainly can if you wish, getting it out of the way for a permanent installation, and with the advantage of ultra-short-throw that it will be in a position relatively close to the image position, not hanging down in the middle of the room.

The throw distances remain the same whether benched below or mounted above. For a 100-inch image, the back of the projector needs to be 25cm from the wall, remembering that the projector itself is 32cm deep, putting the projector's front feet around 50cm from the wall. For a 120-inch image, the projector front will need to be 68cm out from the screen. This is quite a way into the room, and/or requires a very deep bench surface, so we always suggest you measure that distance out in your room, as an early realisation that UST projectors do not sit quite as close to the wall as their publicity images may imply.

As for the question of what surface you're throwing onto, a proper screen is highly recommended, though Optoma doesn't bundle one, nor even sell them here in Australia, where the 'screen' section of its website is as yet blank. Some rivals (including Epson and Hisense) are bundling complete and complementary imaging systems, including a choice of ambient-light-rejecting screen sizes with its UST projectors.

You certainly should consider using a proper screen. It's not only a question of maximising brightness and achieving more accurate colours (as for all projectors), but also a specific ultra-short-throw requirement for uniformity. The geometry of throwing an image up from below is far more challenging than across-the-room projection; firstly it is far harder for a lens to deliver uniformity of shape and maintain chromatic accuracy right out to the corners of an image, and secondly any imperfections in the projection surface become magnified. You may think your rendered Gyprock wall looks pretty smooth, but unless it was rendered by a robot there will be bumps and inclines which can significantly distort a projected image thrown up from below.

"ultra-short-throw can be a neat solution compared with a conventional projector, but has been relatively pricey. Optoma here delivers one at just $2999..."

We must say, though, Optoma does assist wall projection (perhaps because everybody knows that a lot of people do it) by including a wall-colour adjustment menu "fine-tuned by our expert colour team to ensure superior color performance", it says. This has presets for blackboard, light yellow, light green, light blue, pink, and grey. That may help with colour, but for uniformity and best performance, we'd still recommend a screen.

Those considerations aside, though, the Optoma has all the adjustments required to assist installation and adjustment. It's mainly manual — there's less wizardry than on some previous models (we remember being impressed by the Optoma P1, which had a phone app to near-instantly fix any distortion of its test pattern).

Because of their tight geometry, UST projectors need very accurate initial positioning (and if they get bumped they will require very accurate positioning again!). The goal is to get a perfectly rectangular image exactly where you want it, so you don't need to resort to keystone correction, which is available, but both reduces your effective resolution and increases processing time — not enough to throw out lip-sync but enough to trouble gamers (game modes often turn off keystone correction for this reason).

Here there's four corner adjustment, an unusual de-warping option, and two-way keystone correction. All are best avoided if you can, hence the need to get your initial positioning correct. We found that we needed to lift the front of the projector to achieve an exact rectangle on the wall; the feet aren't adjustable, but a coin under each front foot was enough to avoid using keystone.

This projector uses DLP projection technology, which means one of the inconceivably-complex Digital Micromirror Devices which are covered in millions of tiny pivotable mirrors. The native resolution of the device used here is 1920 × 1080, so there are 2,073,600 tiny mirrors in all, each of which can pivot to four slightly different positions during each image frame. Those overlapping positions supposedly thereby deliver four times the resolution, so UHD (consumer 4K) of 3840 × 2160. But overlapping pixels is not the same thing as native resolution, and we can see no geometry whereby it can resolve a single line of pixels (see panel overleaf). It's pretty close, though, while being a whole lot cheaper and smaller than native 4K.

Performance

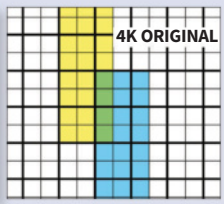
Unboxing the L1+ and substituting it for our usual UST projector impressed on us just how compact a unit this really is compared to most UST projectors. And being almost exactly the width of normal hi-fi components, it sat very neatly on the top shelf of a hi-fi rack.

But the first task was to flip it over and open a hatch to install the little 'Hako Mini' Android TV dongle (pictured overleaf). Unusually this is a flat square module rather than a stick-type dongle, and it fits perfectly into the space provided. It comes with a bag of connecting cables, but you don't need them: you just attach the flying leads inside the bay.

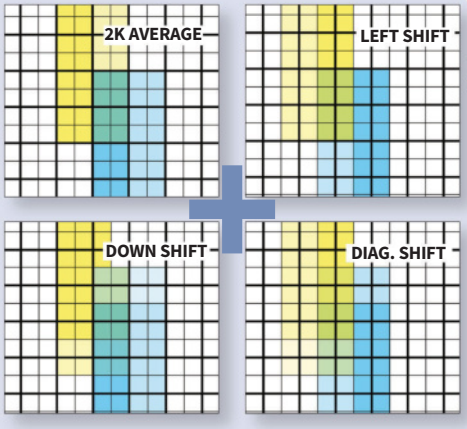
Inputs
There are two HDMI inputs on the Optoma for external sources, remembering that the L1+ comes with its own Android TV dongle to be installed internally to a third HDMI connection, thus providing its own source of entertainment. The USB-A slot doesn't play media but can provide power to an external dongle.

Audio out
For better sound than the built-in speakers, audio can be taken from optical or analogue outputs; there is no HDMI ARC available here.

▲ ORIGINAL: This detail being projected shows two coloured blocks, each three pixels wide at UHD resolution, with a single pixel overlap.



▲ UHD GRID: The small squares on this grid are UHD-resolution pixels. So at UHD resolution, each pixel of the blocks can be captured accurately.



▲ FULL-HD PIXEL SHIFTING: Full-HD-sized pixels are four times larger, so each must take an average of the four UHD pixels in their area. Four different averages can be taken by shifting the samples by one UHD pixel (half a Full-HD pixel) left, down, and diagonally.

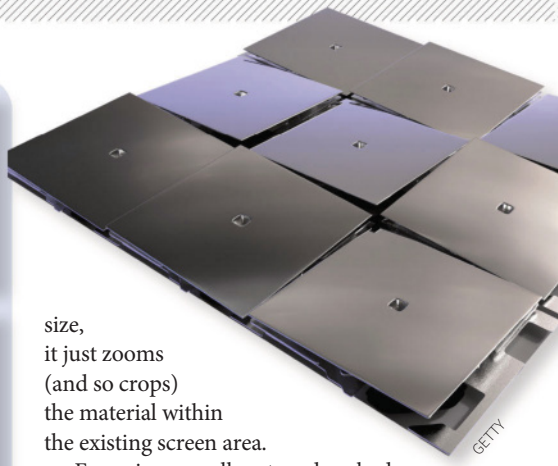
IT'S ALL DONE WITH MIRRORS

This projector uses DLP projection technology, with a Digital Micromirror Device (DMD) covered with millions of tiny pivotable mirrors. Each mirror can pivot to four slightly different positions while delivering each frame, and it is these overlaps which supposedly deliver four times the resolution, so making UHD (consumer 4K) of 3840 x 2160 from the 1920 x 1080 resolution of the DMD panel.

Optoma notes this as being "CTA (Consumer Technology Association) approved True 4K UHD", and compares it with competing LCD systems which only double the original resolution. That's kinda true, though Epson's higher 3LCD models now go beyond the doubling.

Each pivoted pixel is four times the size of a UHD pixel, so that shifting the larger pixels a half width in various directions will sample the frame to UHD resolution. But DLP's pixel-overlapping is still not the same thing as native 4K. If you plot the overlaps, the averaging process results in UHD-level objects that can also have a slight spread; we see the same thing in close-up screen analysis. So it's not native pixel-to-pixel 4K projection, but it's pretty close, while having the advantages of being smaller to implement — and a whole lot cheaper.

▲ RESULT: By projecting the shifted full-HD averages at their slightly different positions, persistence of vision combines them, yielding an impression of the higher resolution.



size, it just zooms (and so crops) the material within the existing screen area.

GETTY

Focus is manually set, and we had a little trouble achieving perfect focus for both the central area and at both side edges simultaneously; the edges looked a tad soft with test images, but you wouldn't pick it in use. What was impressive was the projector's ability to deliver straight horizontal lines; we've seen lens systems which visibly deliver the slightly curved arc that comes naturally from a projector positioned in this way. Here the relative straightness prevented long wide pans swaying from such distortion.

Colours were good out of the box; it goes beyond the Rec. 709 colour gamut to cover 93% of the DCI-P3 gamut, which is the maximum a film or digital camera will capture. In a darkened room the colours were able to lift with vibrancy from blacks that were subjectively close to true black; there is an HDR implementation here for 10-bit HDR10, though not for 12-bit Dolby Vision. Either signal type will put the Optoma into its HDR settings, which lock off most further adjustments, though you can force them by disabling auto-HDR.

There are no motion settings, except, rather oddly, in the gaming mode. There's nothing to stop you applying that mode to Netflix, say, if you disable HDR to get there, but the better solution is to reset the frame rate on the Hako dongle. It was initially locked to 60Hz, so causing some pull-down judder on 50Hz material and potentially even 24fps (nearly every movie). In fact the results were not too bad: some judder on wide pans of ABC's *Gardening Australia*, but only slight judder on one shot of our dongle torture test, S4E1 of *Formula 1: Drive To Survive*, where Christian Horner jogs through the countryside after the title sequence. Generally if anything's going to judder, that judders, and it was almost perfect here.

But pedants like us will be mighty pleased to find that under the Android TV menu's 'TV settings' you can change the output of the dongle to 4K/50, or even 4K/23.976Hz for movie perfection. It's a bit of a drag (and there's trial and error; SBS movies played best at 50Hz rather than 24Hz, for example), but it's very useful.

This square dongle is a third-party solution; while Optoma is a Taiwanese company, Hako is based in Shenzen, China (although at one point Netflix called it a Nokia dongle, curiously).

This means that you get two remote controls: a small flat one for the Optoma projector, and a slightly larger one to pilot the dongle (pictured right). This might seem inconvenient at first, but the Hako remote's lowest button switches it to control the projector instead — neat! (*Mea culpa*, though: we activated this button by mistake early on, and then couldn't control the Android TV interface, and went as far as calling Optoma for help before the switching key was pointed out to us... duh.)

One area where Hako scores over most such dongles is in having a working Netflix app. The streaming giant has mysteriously failed to engage with projector companies and many projector dongles can't do Netflix, or have workarounds which are messy (although you can always plug in an external media player). But with the Hako dongle the Netflix integration is full and effective, along with the thousands of other apps available via the Google play store, including Disney+, Kayo Sports, AppleTV+ and all five Australian terrestrial catch-up services. Indeed we couldn't find anything at all missing.

The interface here is Android TV (version 10); familiar, easy to use. It updated itself not long after we connected the Hako to Wi-Fi, and it all went worryingly dark for a moment… then came back announcing that Android TV had been updated, and that we could now enjoy personalised ads; lucky us!

Set-up and positioning proved fairly quick, perhaps because we normally have another UST projector in this position, so we were simply swapping out. The projector's position is indeed critical — both its height from the ground, because the image base will begin some 30-40cm above the projector (or below it, if ceiling-mounted), and its distance from the wall, because the screen size depends entirely on this distance. There is no optical zoom, and the digital zoom doesn't increase screen

All judder vanished each time we switched to the correct frame rate.

We found the projector's settings menus, as opposed to the Android settings, to be a bit glitchy, slow to come up, or disappearing after use, rather than carrying on to the next setting. HDMI handshakes could be slow, too.

How about the brightness? LEDs generally aren't as vibrant as laser light sources, but the L1+ is quoted at 2500 lumens, and it's firing from up close, so could this UST projector replace a TV, even during daytime?

That depends on a number of things. In a living room with substantial ambient light, as is common in Australia, not really. An ambient light-rejecting screen will help enormously toward such a goal, but even then you'll have a hard time watching dark material, although cartoons and *Gardening Australia* were bright enough to enjoy, if not to benefit from the full delivery of colour and contrast available once the sun goes down. Your other option during the day is to move the projector closer to the wall, so shrinking the screen to increase the light levels. The 'Bright' mode helps too, though we found it impossible to achieve anything close to colour accuracy in that mode.

The L1+ of course shines brightest when the sun goes down and its full abilities can come into play. How rich the Marvel red in the opening credits of *Secret Invasion* (4K/24 from an Apple TV via HDMI); how deep and textured the raised skin of Nick Fury's face scars and skin. Very best performance and maximum sharpness came via HDMI from UHD Blu-ray, though we'd say if its compact size (and relatively compact price) are betrayed at all in visual performance, it's perhaps in ultimate sharpness against some larger rivals. And the truth of it is that UST projection starts at a disadvantage against front projection for sharpness anyway.

We should also note that we used this projector two ways — with a 100-inch fixed screen, and then blowing things up fully to 120-inch using a large open wall area instead, despite it being painted light brown. And it's funny; the screen clearly gave the best image quality, but for general entertainment we were quite happy to take the extra real estate and suffer the slight losses and image distortion this incurred. It's bigscreen images that remain projection's trump card, and the Optoma works well even if you're using an impromptu projection surface.

Audio

The Hako dongle must declare itself as stereo-only, as Netflix titles display 'Spatial Audio' soundtracks — these are Ambeo downmixes that replace 5.1 or Atmos when equipment cannot reproduce a surround mix. That would indicate that the dongle's audio output will supply stereo only.

But you should connect it to something. The built-in sound system is disappointing. It's a stereo system but there's very little bass to it, so that voices are certainly intelligible but the overall delivery is brash and rather dimensionless if you turn it up; the response here pales beside the sound available from similar (if admittedly larger) UST projectors from rivals such as Hisense and Xgimi. We would not recommend the built-in sound beyond casual use. If you want expansive and full sound, add at least an optically-connected soundbar, preferably a hi-fi system.

Conclusion

TVs are getting bigger; even 98-inch TVs are beginning to enter the realms of affordability. But 120-inch TVs? Forget it. Projection remains the only way. Smart ultra-short-throw projection can be a neat solution to achieve this, compared with placing a conventional projector, but they have been relatively pricey until now. Optoma here delivers one at just $2999.

It's relatively compact, perhaps why its sound system is a notable weakness, but you could add an external one and still come in below the price of many rivals in this space. The Android-TV dongle's Netflix provision beats many of those rivals, and the L1+'s brightness is sufficient to watch in anything other than strong ambient light, though its performance is very much best after dark. And while it's better with a proper screen, it does very well even with an impromptu wall.

So subject to the above caveats, we'd say the Optoma L1+ performs above its price, and can provide a genuine TV alternative in all but strong light conditions. +

SPECS

Optoma L1+ $2999

Projection technology: DLP, 0.47-inch FHD Digital Micromirror Device with 4x pixel shifting technology
Resolution: 3840 x 2160 pixels
Aspect ratio: 16:9
Lamp: 4LED
Lamp life: 30,000 hours
Quoted contrast ratio: 1,800,000:1
Inputs: 2 x HDMI 2.0, 1 x mini-HDMI (internal), Wi-Fi, AndroidTV dongle
Outputs: optical digital audio, minijack analogue audio, USB-A (power 1.5A)
Brightness: 2500 lumens
Dimensions (whd): 400 x 113 x 316mm
Weight: 5.6kg
Contact: Optoma Australia
Web: au.optoma.com

AV ahoy!

by
CIS Allure

A superyacht deserves super sound, yet the choices aboard '*Betty*' may not be what you'd expect for a marine install...

SOUND+IMAGE PRESENTS WORLD-CLASS AUSTRALIAN INSTALLATIONS

It's one thing to design a system that will provide reliable and high-quality multizone entertainment across a home. It's quite another when you put that home on water, shrink the living spaces to a nautical compactness, and run the entire system from an inconsistent mains supply.

But the prospect didn't much faze Nathan Purcell and his team at CIS Allure. Nathan spent many years in competitive sailing and has combined that passion with his technical skills to deliver premium sound and video systems aboard many vessels.

"This was the third boat where we'd worked with this owner, and the client was also accustomed to our interfaces and systems working reliably in his homes," explains Nathan, Director and owner of CIS Allure.

And for this latest project — *Betty*, a 25.91-metre motor yacht, built in Malaysia by US Grand Banks Yachts — CIS Allure had a key advantage.

"We had previously been retrofitting systems, and that's a challenge," says Nathan. "The speaker selection becomes especially difficult, because of the limited space available on what were already fully completed vessels."

So this time, the client involved CIS Allure from the very beginning of construction.

"When it came to *Betty*, I saw the boat being layed up in Malaysia," says Nathan. "That made it much easier to explain the importance of the equipment locations to the project managers, and it gave me a far better idea of the cable paths available and what their lengths would be."

Floating an idea

Betty is quite the vessel, the flagship and first of the US company's GB85 design from the latest Grand Banks series, a name synonymous in the yachting world with the romance and luxury of long-distance cruising. She was unveiled as one of the stars of the 2022 Palm Beach International Boat Show in Florida — "*the most fuel-efficient, high-speed, long-range cruiser of this size in the world.*"

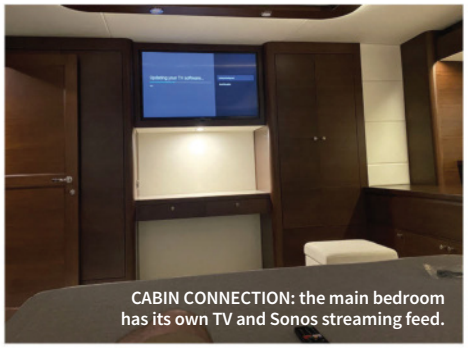
So CIS had a task ahead of them to match the expectations of the client and CEO of the company. Notably, there were very specific restrictions for the placement of everything on such a prestige vessel.

But with a detailed knowledge of *Betty* and hands-on knowledge of the spaces available, Nathan planned a four-zone system to deliver audio to the Main Salon and the associated Salon Deck, and to the upper Sky Lounge and its Sky Deck.

The Salon and Sky Lounge were each to have Sony 65-inch televisions that would be hidden away within joinery, so that the panels can rise into place only when needed, and do not otherwise impede the all-round cruising views.

Even with the advance information on the build, however, the space constraints were a challenge.

"Finding space within this kind of design focus is challenging to say the least," explains Nathan. "With yachts like Palm Beach and Grand Banks, the design philosophy is based primarily on making use of all the internal hull volume that you can for living areas. The naval architects for the company are amazing at using



CABIN CONNECTION: the main bedroom has its own TV and Sonos streaming feed.

ALL ABOARD THE SKY DECK ▶ A Sony television is stowed away, supported when in use by Morel LCR ceiling speakers plus a Morel subwoofer hidden away in a sealed enclosure. The lower Main Salon has an identical AV system, with each area using extreme outdoor speakers to extend the party to the more exposed deck areas.

every tiny bit of real-estate on board to make these boats feel much bigger than they really are. So while the CEO was happy to have our involvement, he was very specific about the locations for everything. Decent AV gear can need a large footprint — so finding places to install everything took time and planning."

Full-on party performance

With space at a premium, you might expect a choice of compact amplifiers, perhaps low-energy low-heat Class D. But that is not what CIS Allure means by 'decent AV gear'.

"In our experience, sound systems on boats like this can be driven very hard during parties, or when under way, due to environmental noise created by motors, wind and the like," says Nathan.

"The next issue is speaker cable length — on a boat the speakers can be quite some distance from the amp. For this reason we prefer high-current amplifiers with high damping factors, so you can drive speakers and amps hard. And in most cases, like this one, the speakers are installed infinite baffle, so driver control is important.

"So we chose the Adcom amplifiers for this, as they are large traditional Class-AB designs, as well as having large filter capacitors that help with all the noise that can occur on the mains supply of a yacht. Power is generally run via an inline inverter from the boat's battery system. Shore power can be connected to 110/120/220/230/240V docks and also be powered by the onboard generators."

So Adcoms it is — a brand whose appearances in our last two Sound+Image Awards is testament to their build and sound quality.

"They are GFAs!" says Nathan, referring both to their model number and the tradition that GFA stands for '*great f***ing amplifier*'.

Speaker positioning was pre-defined by the interior design of the superyacht, but there was similarly no skimping on the units chosen, from high-end manufacturer Morel.

"They're LCRs," says Nathan. "Dual 5.25-inch woofers with 3-inch voice coils and a 25mm tweeter in each. They are left and right of the TVs, in the ceiling, so there is an image, if not what you would call an authentic soundstage. I would have preferred more accurate true hi-fi stereo, with left and right speakers at ear height, but the fit-out just doesn't allow for it — the beautiful timber panelling would have had to be cut or sections added to the windows, and that would detract from the aesthetic lines when the TV was not in use."

But that didn't prevent CIS Allure installing a secret weapon or two, in the form of Morel 10-inch subwoofers with 5-inch titanium voice-coil formers. Where did they find room?

"Well we had no chance of fitting conventional subwoofers under the lounge areas, so the cabinet makers worked with me to build sealed 34-litre enclosures under the built-in lounges in each of the areas — these are driven from an Adcom 555ms bridged to mono. The bulk of the rest of the equipment was installed under the Helm seat and forward of the Helm, both areas that also proved to be great locations away from the salt air."

Sources & sounds

Crestron interfaces the four zones together, controlled via dbx Zone Pro 1261 controllers.

"These are 12-input 6-output mono units, here configured for stereo, so six inputs distributed to three zones: inside, outside, and subwoofer," says Nathan. "One of the main reasons we used the dbx units was their ability to incorporate parametric EQ, and even more importantly here, soft limiting."

There is Sonos streaming music available across the vessel, in the Sky Lounge and Salon zones as well as in the Master Bedroom zone, which has its own Sonos Amp for streaming, and plays via ARC from the zone's television. The Sky Lounge and Salon Sony TVs are similarly connected to the audio systems by HDMI ARC. Their audio is extended to the exterior deck areas through 'extreme outdoor' two-way eight-inch Sonance ceiling speakers.

Final results

While CIS Allure provides AV, sound systems and automation system at any level for homes and offices, it's clear that setting up sound for a super yacht is a particular thrill for the team — especially when the owner ends up happy.

"The client was very impressed," says Nathan. "He said that the music he'd listened all his life had more detail than he'd ever heard before. Very big smile!"

▲A WHOLE LOT OF ADCOM: above, the GFA 555ms power amp doing the heavy lifting aboard *Betty*, and the twin equipment racks housing the onboard amplifiers, each with an associated cooling unit.

EQUIPMENT & CONTACTS

SKY LOUNGE & SALON (each)
Sony 65-inch television
Adcom GFA-555ms power amp x 2 (one bridged)
Morel MHW-525 LCR pair
Morel TICW 1058

SKY LOUNGE DECK & SALON DECK (each)
Adcom GFA 555ms
Sonance VPXT8R in-ceiling speakers

MASTER BED
Sonos Amp
Sony 55-inch television
Morel MHC600 ceiling speaker

CONTROL
iPort Luxe ports and stands for iPads
Unifi Pro app
Crestron CP4 processor
Crestron MPC3-302B panel
dBx ZonePRO 1261m 12x6 zone processors
Ubiquity pro 24 port switch
Ubiquity UDM Pro gateway console
All amps and rack equipment cooled by their own
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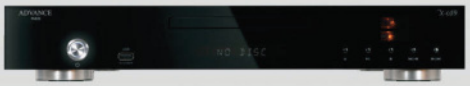

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SYNERGY
AUDIO VISUAL

New entry!

It comes at an entry-level price, but this Lenco turntable has both performance and facilities that we'd expect would come from a higher deck.

SUMMARY

Lenco LBT-225
turntable
Price: $695

+ Great looks and build
+ Solid fundamental sound
+ Internal phono stage
+ Bluetooth and USB out
– Rear switch for gain
– Some noise on USB output

From first sight, this seems like it is a lot of turntable for the money. Lenco's LBT-225 is a belt-driven fully-manual turntable, with a substantial plinth in a very nice walnut finish, fitted with a glass platter, a carbon-fibre tonearm no less, and the ever-reliable Audio-Technica AT-VM95E moving-magnet cartridge to track your tunes.

As if that wasn't enough for your $695, under the platter hangs an electronics section which includes a built-in phono stage, so you can take the output at full line-level into any amplifier, rather than at the phono-level which would need either a special phono input on your amplifier or a standalone phono stage to pre-boost the signal. And you still retain the option to switch back to phono level if you have your own superior phono stage.

And there's more — a Bluetooth output, which can pair with headphones or a Bluetooth speaker (or anything else that can receive Bluetooth, such as a smart amplifier) for easy vinyl replay without the cables. In addition to headphone listening this option might allow more versatility to site the Lenco turntable anywhere in the room that you can plug it in.

And what's this USB-B socket on the rear? That's to connect with a computer and record your vinyl digitally. Handy.

At this price — again, just $695 — you might hope to find one or two of those features on a turntable. But the lot? It hardly seems credible. Yet here it is, sent to us by the enthusiastic importer and distributor Audacity Australia. We got straight into it.

Build & facilities

Lenco has a long history, originally Swiss, launched from a radio shop in a town north-east of Bern (the region from which comes Emmental cheese) by the husband and wife team of Fritz and Marie Laeng, from whose surname 'Lenco' derives. The brand flourished until the 1970s, when both Laengs died within four years of each other.

Since then the name has been revived several times, and is currently based in the Netherlands as part of the Commaxx stable of brands. We like the tone of this organisation: they manufacture in China, but specifically emphasise that they are tight on working practices, production quality and trust.

"We have chosen to treat our customers and suppliers as friends," they say, which is an attitude surely to be applauded.

There's certainly every sign of good quality control marking out the LBT-225. The plinth is no lightweight, being nearly 30mm thick, and the full turntable 6.6kg, a kilo over, say, the Debut Carbon or Recordmaster turntables by Pro-Ject that might provide a comparison. And that walnut finish looks like a nice dark properly-grained veneer; it fits perfectly around corner edges and is invisibly masked around the sub-platter by a plastic lip.

That sub-platter, the little mini turntable around which the belt winds, is plastic, one of the few signs of economy here. But then the 13mm green-tinged glass platter which sits on top lends it such a touch of class that it's almost a shame to cover it with the provided Lenco felt slipmat.

There's also the essential hinged plastic lid to fit over the deck, not only a protection against dust during playback and resting, but also useful to minimise acoustic feedback from your speakers to the stylus.

That snazzy carbon-fibre arm is coated in a clear lacquer and has a 8.6-inch effective tonearm length, or almost 17cm from its pivot to the removable cartridge head, which is angled to a 'J' to bring the Audio-Technica AT-VM95E cartridge and its stylus parallel to the LP grooves.

Although the turntable arrived with us assembled, it would normally require the cartridge head to be attached and aligned, and the tonearm then balanced. We went through this procedure anyway: the provided

Lenco LBT-225
turntable

thick-paper two-point alignment card showed the cartridge to be accurately positioned, but the counterweight was way too far back, so we floated the arm properly, then added the required 2g tracking force.

Then we got the hanging anti-skating weight out of its packet, and with a bright light and a magnifying glass we soon completed the always horrendously fiddly task of hanging this tiny bit of fishing-wire nylon off the third groove of its tiny adjustment stub, the little anti-skate weight dangling loose.

The green-shelled AT-VM95E cartridge is an old friend, of course — a dual-magnet design which, according to Audio-Technica, "*duplicates the 'V'-shaped arrangement of the magnets in the cutter-head of the recording lathe and precisely positions its own magnets to match the positions of the left and right channels in the groove walls.*"

The AT-VM95E one of the company's best-selling cartridges for good reason: it has a smooth, rich sound quality that makes for very easy and enjoyable listening, particularly on well-worn records, and not only sounds very good but also tracks very well.

Yet a replacement cartridge, when the day comes, will set you back only around $80, and long before that you can slide out just the stylus and freshen up your sound for a mere $50. Indeed there's another advantage here, because you can slide in different styluses for different occasions, so that instead of the straight replacement VNM95E stylus you could upgrade to Audio-Technica's nude-mounted elliptical VNM95EN ($199), the nude-mounted microline diamond VNM95ML ($279), or a diamond with a line-contact Shibata stylus, the VNM95SH ($299).

This gives the option of using the supplied stylus for day-to-day playback, but switching it out when you're making a recording to computer for keeps by simply sliding in, say, the superior microline stylus. They'll all fit, they'll all work, so you have a nice little upgrade path there, either for special occasions or permanently.

We finished setting up by plugging up cables and rechecking the plinth and platter were level, the latter job made easy by the Lenco's large and adjustable isolation feet.

We eventually tried all four outputs of the LBT-225, but we took them in order — line-level listening first, then phono-level into our own Musical Fidelity phono stage

(which should be better than what's inside, given its price exceeds that of the whole turntable and then some), then the fun and convenience of Bluetooth, and finally that computer output for recording.

These selections are governed by switches at the rear — never convenient to access on a turntable, so learn which are which by feel, so you don't have to keep a shaving mirror behind the deck to read the labels. (Tip: using your phone to take a picture of the rear saves having to move the turntable around after set-up to check — or better still, plug everything up before you do the setting-up procedure, so you don't knock off that damned anti-skate weight while you attach the cables, like we did!)

Listening sessions

The power button is up by the tonearm pivot, also a little inconvenient, but most of the time you'll just use the dial at bottom left to move between the central stop position and either 33⅓ or 45rpm. Or so we thought: in fact the Lenco goes into standby mode pretty quickly, so you need to power it back up regularly.

Momentary panic at this point of our experience, because the platter didn't start revolving no matter which buttons we pressed. The instruction book gets this wrong; it says the platter will start revolving and then you unlock the arm clip and move the arm over the vinyl. In fact things start revolving only after the arm is moved over the record. Phew.

It's a nicely quiet turntable. We played side three of Jack White's 'Acoustic Recordings', opening with the Coke ad song *Love Is the Truth*, which contrasts spacious sound with bursts of action, delicate picking over light toms into full-on strumming with fuller drums and overdubs. Startlingly real this sounded; the Lenco was delivering no mere entry-level vinyl performance.

Next up, the bluegrass version of White's Raconteurs/Saboteurs *Top Yourself*, in which the Lenco thoroughly proved its hi-fi credentials by putting Mr White's vocal centre-stage and impeccably toned, in-the-room real, even as the bluegrass action blasted around him — fiddle left, banjo right, each clear and widely separated, Patrick Keeler's drums with a deep thuddy kick and splashy right-channel cymbal, and again, no audible noise except a little surface crackle between tracks. As you'd expect from a man who owns a record plant, White's LPs are impeccably mastered, and the Lenco is a playback device able to reveal this quality.

It even held on to the tricky innermost track, the lively *Machine Gun Etiquette*, perhaps a little less open, the vocal tracked with a little less clarity, but no side-groove noise, and excellent stability, as some stretches of lone piano made clear.

Talking of which, we ran both the Sound+Image strobe card and the RPM app over the Lenco, finding it running a tad (0.77%) fast at 33.59 rpm, while the RPM app put wow and flutter at a perfectly acceptable 0.15%.

Next we upped the groove rate by turning to the 12-inch single of Tears For Fears' *Sowing The Seeds Of Love* (for some reason we have two copies; don't tell the missus), and we were very impressed by the Lenco's handling of this extremely dense mix, which is sometimes Wall of Sound, sometimes *I Am The Walrus* effects madness, sometimes pumped-up 'Pepper', but with a very pushed snare crack cutting through from start to finish, and far more obviously so on the vinyl here than when cranking a digital file. Thanks to a sublime friendliness for which we can thank the A-T cartridge, this difficult piece emerged with a presentation that was never harsh and yet able to give that snare the crack and attack it needed, even while celebrating the sound-scapes to either side. We had this playing very loud, because audible distortion was so low that volume was encouraged.

To reveal the subtlety of this system, we turned to the less frenetic but deeply cool pace of Miles Davis' 'Nefertiti'. We had this up very loud for the lead-in and there was a little deep grind audible above the noise floor, although the music, once started, was so loud that once we'd turned it back down to normal listening levels you'd be hard pressed to hear it.

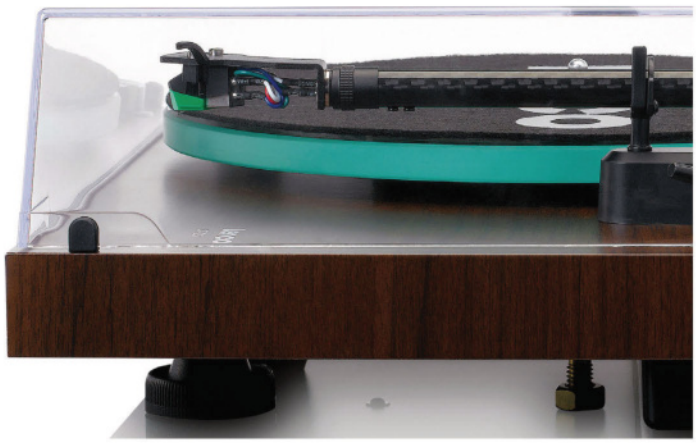
We were still using the built-in phono stage at this point, so mid-LP we switched the cables over to our own reference phono stage. The grind vanished, but was replaced by earth noise, as the provided cable did not have the requisite flying earth lead to connect to the earth pins at each end. We substituted our own, and not only was the background quieter but the clarity and soundstaging were indeed taken to another level.

That shows that the Lenco has more to give beyond the abilities of its own phono stage, enjoyable as that had proven. So that's one potential upgrade path ready and waiting for purchasers, while the aforementioned stylus swap-outs offer another.

Listening via Bluetooth is never an upgrade; the codec here is unspecified but

Outputs
There are four way to play from this Lenco turntable. The L and R sockets can be connected at line-level to an amplifier, thereby using the internal phono stage. Or bypass that for a true phono output, also adding the earth connection. The USB-PC socket allows recording to computer, while Bluetooth output allows wireless playback.

Gain select
An unusual 'gain select' switch offers three levels of output, Lenco suggesting changes are made "while playing" – not so easy with the switch at the rear...



likely the base-level SBC, far below CD quality. It's also a little harder to set up a Bluetooth connection without any screen or app involved. All you can do is set the Lenco into pairing mode, put the other device into pairing mode, and hope they get on well together. We had a glitch here with our sample unit, but subsequent saw another unit pairing fine, and quickly, so we know it works; we didn't, however, get to listen to the Bluetooth link.

The USB output worked beautifully. Lenco recommends the free software Audacity (and quite right too), and it gives good instructions for a PC, though nothing for a Mac. We tried ProTools Ultimate on a Macbook Pro, with the Lenco selected as input (it appears as 'USB Microphone'). It apparently offered a range of sampling rates up to 48kHz, most likely 16-bit, though we recorded at 24-bit/44.1kHz.

We should mention that the arm drop is possibly the slowest in the world — hang on, we'll time it… yep, just over six seconds from when you drop the lever to when the needle actually hits the groove. You can have the lid down and be back in your seat before you find that you missed the edge of the record. No, happily the drop is accurate as well as slow, and really, there are advantages in this — most especially when you're recording to computer, as you're able to get back to the PC and hit the red button without missing a thing.

The tone of such recordings was very good, the sound quality easily matching rivals near the price and in fact requiring a doubling of funds to reach anything which brought a clear improvement, to pull more detail of the acoustic around the vocal on Pink Floyd's *Pigs On the Wing Pt.2*, for example, or better delineate the piano notes of Ketih Jarrett's *Flying Pt.1*. The only issue with the USB output was a consistent low-level buzz we couldn't dissipate.

One switch on the back we don't quite understand is the 'Gain select' options via a little three-position selector on the rear. "*When playing, adjust the difference of the volume of the vinyl records*," say the instructions, suggesting you can notch it up for quiet records, down for louder ones. If that's what it's for, it's a bit daft to put it behind the turntable for adjustment "when playing", given you might easily bump the plinth getting to it, or worse, flick the wrong switch, put the phono output up to line level and deafen yourself.

A gain select option like this might make more sense if kept in reserve for a lower or higher-level cartridge, but otherwise we'd say leave it on 'mid' and just use your volume knob. The one exception might be for Bluetooth use, where a louder source signal would give you more headroom at the output device. But as noted, we couldn't test the Bluetooth. It did, however, act on the USB digital output, so there's every probability it'll do Bluetooth too.

Conclusion

All in all, we think the Lenco LBT-225 turntable to be an absolute bargain. It performs to the level of rivals at the price and beyond most, while its build (carbon-fibre arm, best-seller cartridge, walnut plinth) and facilities (phono stage, USB, Bluetooth output) offer a great deal extra.

On top of that, there are several upgrade paths for the future. You could start with just this turntable and a Bluetooth speaker, then upgrade to a real hi-fi, and still then upgrade the stylus and the phono stage, and through all that the basic performance of the LBT-225 is high enough to support better sound all the way. An excellent buy. +

SPECS

Lenco LBT-225 $695

Type: belt drive, manual

Speeds: 33⅓, 45pm

Cartridge: AT-VM95E

Outputs: phono-level, line-level (RCA switchable), Bluetooth out (SBC), USB-B digital out

Dimensions (whd): 418 x 123 x 346mm (cover 410mm high when open)

Weight: 6.7g

Contact: Audacity Australia

Telephone: 03 9645 3887

Web: www.audacityaustralia.com.au

Musical Fidelity A1
stereo integrated amplifier

Born in the ’80s

It was a classic in its day, and it’s now reissued in nearly its original form. But is 1980s hi-fi something to get excited about?

The creation of a revived Musical Fidelity A1 amplifier plucked from the 1980s might be viewed as a cynical marketing exercise, jumping on the current ‘retro’ hi-fi revival. After all, Heinz Lichtenegger’s Audio Tuning company took over Musical Fidelity only five years ago; it has recently announced retro BBC-style speakers, so are they just pulling out an old amplifier design to fill out a new retro range?

The answer to that seems to be a resounding ‘no’. Lichtenegger purchased Musical Fidelity in 2018 after close involvement with the brand for decades, and according to the company’s audio engineer Simon Quarry (see interview panel), “bringing back the A1 is fulfilling one of his hi-fi dreams… it impacted his life so strongly as a product and was one of his first major successes as a budding distributor in Austria.”

So this is a mission to revive a classic product of the past: from 1984, to be precise, although some say 1985 (memories were vague enough that the company’s original announcement said 1988). That’s back beyond even the lengthening hi-fi memories of our Editor, who started in hi-fi magazines back in 1989, just in time, he says, to remember the remarkable but controversial budget B1 amplifier from Musical Fidelity. By then, as he recalls, the A1 was already something of a legend.

Build & features

What made the A1 so unusual back in 1980-something, and continues to do so today? Mainly that it uses an electrical circuit that is biased strongly into Class A operation. That is so unusual that it makes our system of comparative reviewing tricky here — Musical Fidelity’s A1 doesn’t really have any obvious rivals. Sure, we could judge it as a rather basic and low-powered all-analogue integrated amplifier, but that’s missing the point. This is clearly not a normal proposition.

It is a (mostly) faithful remake of the original 1984 design. Apart from meeting modern legal requirements, the company’s intention was never to offer a fully modernised version like, say, NAD is doing with the recent L 3050. Besides, Musical Fidelity had already tried that idea in 2008, when an A1 was released “inspired by the original A1” but with different circuit layouts; it even included a digital stage, with a USB-B input for connecting to computer (sample rates supported all the way to 48kHz back then). But the sound was different.

That wasn’t the intention this time around. The goal for this A1 was simple: to bring back an iconic product for a new generation of music lovers.

So we must partially view the A1 through the lens of someone that might consider owning an original classic A1 amplifier but doesn’t want to deal with the uncertain-

SUMMARY

Musical Fidelity A1
stereo integrated amplifier
Price: $3000

+ Bold, smooth and effortlessly musical presentation
+ Good phono stage
+ It now has a remote control!
– No digital inputs
- Still runs very hot

"The A1 held its own, sounding expressive and fluid in a way that eludes most modern alternatives."

ties and reliability issues that come with any second-hand amplifier that is decades old. Does this resurrected design scratch that particular itch? But just as importantly, does the A1 still have anything interesting to offer modern hi-fi fans?

So Class-A circuitry — is it better, and if so, why do most amps use Class-AB or more modern Class-D 'digital' variants?

On paper, Class-A minimises distortion, so has obvious benefits for sound quality. A transistor needs a certain amount of bias current flowing through it to actually work, but in Class-A the output devices are not kept just slightly switched on until required (Class-B); instead the level of that current is always set to maximum, which ensures that the transistor is working in its most linear operating region. Linear operation and no switching keeps sound distortion levels minimal. And if that amplifier is working at full volume then the bulk of that energy is used to drive the speakers.

But the flip side is that even when not operating near full volume, there is huge power consumption and the generation of lots of heat. It is the heat that leads to the A1's distinctive look, where the entire top plate is a giant heatsink. Electronics don't tend to like excessive heat, and it is fair to say that early versions of the original amplifier gained a reputation for poor reliability because some of the internal components were under-specified for the temperature conditions.

That's been rectified in the 2023 model with updated components where required, and Simon Quarry notes that the new model also has a bigger case (see comparison overleaf) with more ventilation and a more open airflow inside. Mind you he also says that these changes allowed them to bias the amplifier even higher than some of the later originals.

How hot does it get? Still hot, if not as much as the original, and the manual carries the same bold warnings about temperature, all in capitals: "AT LEAST 50MM OF CLEAR SPACE BEHIND, AT LEAST 250MM CLEAR SPACE ABOVE THE A1", it says. "TO ALLOW FULL HEAT DISSIPATION, NOTHING SHOULD BE PLACED ON IT AT ANY TIME." You have been warned!

During listening sessions we found we could leave our hand on the fluted top panel only a couple of seconds before it became uncomfortable. Bear this in mind if you live in a part of Australia which routinely has high ambient temperatures; these will drive the A1 — and your room — even higher. The manual warns against humidity too.

While the company has been careful to stick to the original circuit on the whole, there are important differences, some of them detailed by Simon Quarry in the interview panel. There are new output devices and the power supply arrangement has been improved, giving each power amplifier channel a separate and more generous feed. There is now an improved layout around the phono stage and a better-quality volume potentiometer, which is motorised to make remote control possible — such control was a rare luxury back in 1984. The new one only has three buttons: volume up, down and mute, but the simple handset is metal-cased and feels nice in the hand.

In contrast to the 2008 revival, this is an all-analogue reproduction. There are five analogue RCA input pairs

Inputs
There are no digital inputs at all on the A1, nor Bluetooth or any streaming of any kind. As back in the 80s, it has five line-level inputs including the tape loop, along with a phono input for turntables which is switchable between moving-magnet and moving-coil cartridges.

Outputs
There's one set of speaker binding posts, also fixed and variable outputs via the tape out and pre-out sockets. Unusually (even for its original time) the A1 still offers no headphone output.

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FUTURE

Audio designer Simon Quarry on the A1

Simon Quarry has worked at Musical Fidelity for more than 20 years and is the engineer responsible for resurrecting the company's A1 amplifier. We asked him how the plan came about.

"When I first joined Musical Fidelity — in February 2001 when founder Antony Michaelson was in charge — I spent my spare time studying the company's historical schematics and looking at the various units that came in for repair. I always admired the A1 design, but the opportunity rarely arose to consider reintroducing old designs in those years.

"In 2018 I left to work on another project outside the hi-fi industry. But I returned to Musical Fidelity in 2019, not long after Heinz Lichtenegger and his Audio Tuning group purchased the company. Heinz has described bringing back the A1 as fulfilling one of his hi-fi dreams. It impacted his life so strongly as a product and was one of his first major successes as a budding distributor in Austria.

"So it took Mr Lichtenegger and his irresistible passion for the A1 for us to start this project. When he acquired the brand, this was always an idea in his head, and today we can do it.

"That's the "who"; as for the "why", we have one reason; it proves that high-end sound doesn't have to cost the earth. It simply makes music like nothing else."

What do you think makes the A1 special?

"A key aspect of the A1's unique appeal is the symmetrical top-and-bottom circuitry as well as its Class-A biased output stage that is not limited to its standing current. This approach means speakers that dip in impedance are still allowed yet more output current if required. At this point, as the output stage is already drawing substantial current, there are no switching artefacts to spoil the quality of the experience."

What are the differences between the original A1 and the new one?

"The brief was to remake the original with as few changes as possible. The new A1 design features properly rated main electrolytics, newer output devices and a better layout, particularly around the phono stage. We added a second power supply, so each power amplifier runs dual mono with its own separate supply for better power handling and channel separation. And the active volume control was deemed problematic, especially in amplifying channel mismatch in the potentiometer used, so it was abandoned for conventional volume control with its inherent better matching.

"In all other aspects, it remains true to the original design, so the overall sound is not affected. The original layout also made sense and remained relatively unchanged save for making the layout of both channels completely identical.

"The bigger outer case, which is now a full 440mm width, and the expanded internal design allow us more leeway to keep the operating temperature within safe limits.

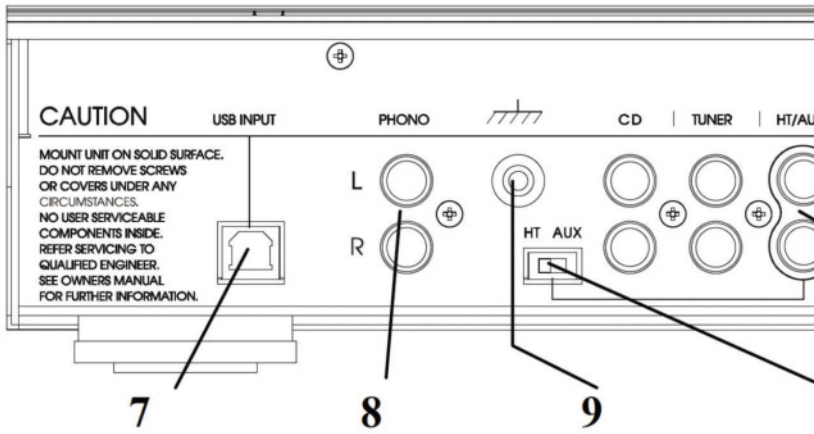
How would you describe the sound of the new A1?

"Smooth, warm, and detailed. I have had the prototype A1 happily playing on my test bench for the last ten months or so and it has been driving quite a few different speakers. It never ceases to seduce with its silky output and inviting but meticulous rendering of all my music from energetic to ambient."

Interview: Ketan Bharadia

"it took Mr Lichtenegger and his irresistible passion for the A1 for us to start this project. When he acquired the brand, this was always an idea in his head, and today we can do it..."

SIMON QUARRY, MUSICAL FIDELITY



▲ In 2008 Musical Fidelity released an A1 variant which included a digital USB input and internal DAC section. But the circuits — and sound — were substantially different. The 2023 edition updates some elements, but stays as close as possible to the original design goals.

labelled CD, Tuner, Aux 1, Aux 2 and Tape In, plus a good quality phono stage which is switchable to handle either moving magnet and moving coil cartridges; both are significantly quieter than the originals, with 15dB improvement in signal to noise.

There are two useful outputs in addition to the speaker outs. The tape loop provides its Tape Record output at full line level, while a pre-output provides a variable signal under the volume control, so could be used to expand the system using external power amplifiers.

In a rather unusual move, there is a front panel switch that bypasses one of the preamp's gain stages, reducing the overall gain by 10dB. This is intended for use with modern high-output sources that don't need so much amplification and makes it possible to optimise the volume potentiometer's travel for a given system. In use, we also found small benefits in overall transparency when we activated that bypass.

Adding digital inputs or Bluetooth would turn this product into something else entirely in the company's view, even though a truly 21st-century A1 amplifier would make an intriguing proposition.

Listening sessions

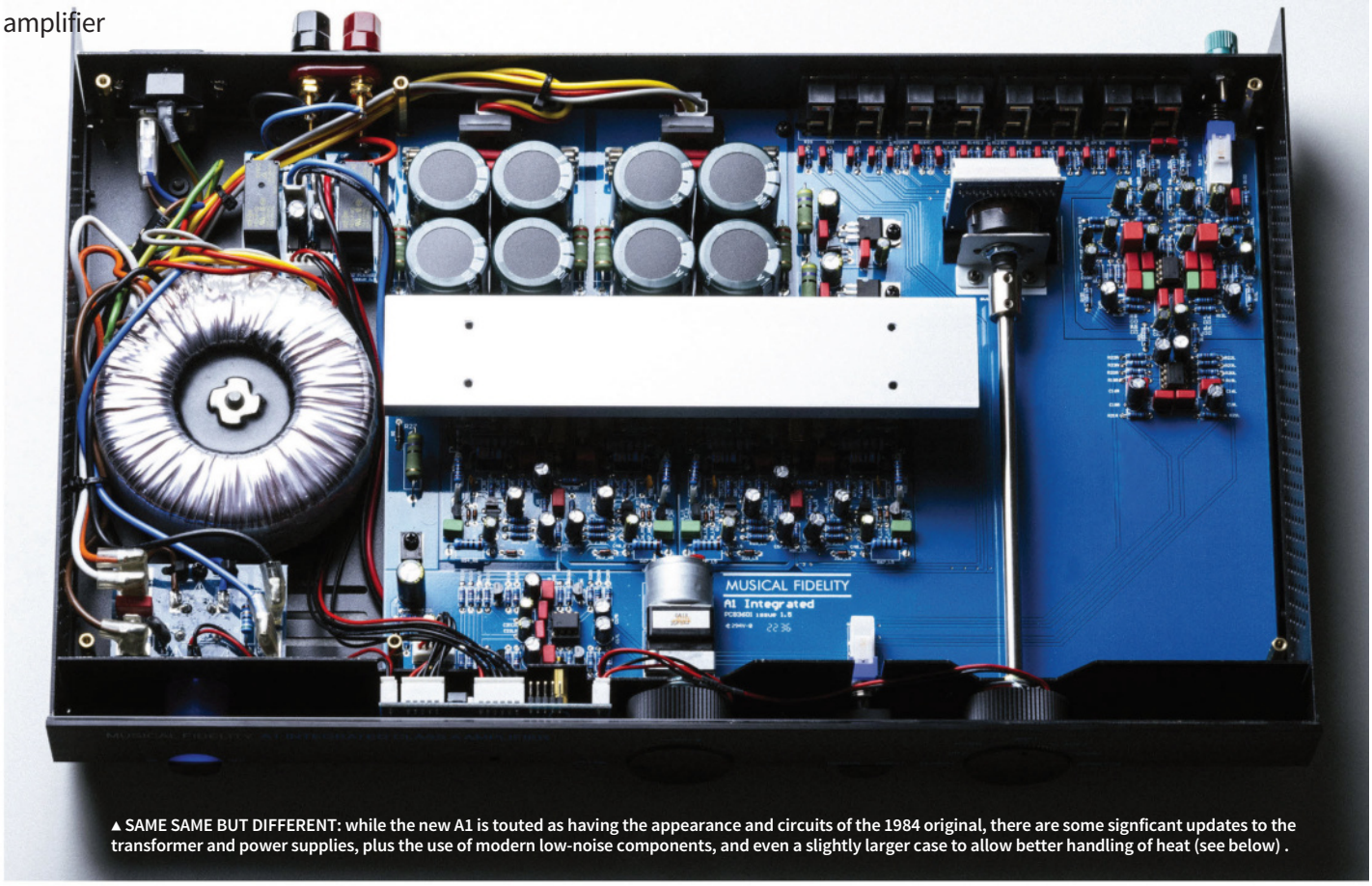
Despite the beefier power supply, the A1's claimed output remains unchanged at 25 watts per channel. That is low by modern standards but — as we all hopefully know after nearly 40 years of saying it — it's not wise to judge an amp on its watt count. Here the power comes with a good chunk of current, while the circuit is still able to slide into Class-B operation when the amplifier is pushed hard.

The result is decently wide compatibility with a range of speakers; we didn't find ourselves having to pick friendly candidates to get the A1 on song, and found it surprisingly well matched to Musical Fidelity's new equally-retro LS3/5A monitors, despite the combination of the amp's modest power output and those speakers' low 82.5dB/W/m sensitivity.

Given its original period, when CDs were barely scratching the surface, as it were, it seemed only right to spin up some vinyl first. We placed Mary J Blige's 'No More Drama' onto the platter and sat back to listen, unsure quite what to expect at this point. This was, after all, a relatively budget amplifier back in 1984, when its price on introduction was £189 (around $265 in Australia, plus a load of import taxes), whereas the 2023 A1 costs $3000 and goes up against premium modern rivals that benefit from decades of advances in electronics.

It turns out we needn't have worried. The A1 held its own, principally by not even trying to sound like everything else. It echoed the original (a sample of which we had on hand) by sounding wonderfully expressive and fluid in a way that eludes most modern alternatives. There was more smoothness, warmth and physicality to the sound than is typically the fashion these days too. It might not be described as entirely neutral — but we like it anyway.

Listening to Blige's *Family Affair* the new A1's presentation was cleaner, more dynamic and better controlled in the bass than before. While not as precise or emphatic on rhythmic drive and punch as modern rivals, the A1



▲ SAME SAME BUT DIFFERENT: while the new A1 is touted as having the appearance and circuits of the 1984 original, there are some signficant updates to the transformer and power supplies, plus the use of modern low-noise components, and even a slightly larger case to allow better handling of heat (see below) .

still got our feet tapping — a fun listen with bold and confident rendering, its beguiling midrange allowing Mary J's vocals to brim with passion.

Control and composure were solid as long as the volume levels weren't pushed too hard. Stay within the amplifier's usable if relatively modest limits and you will find that it gives a large-scale sound that's hugely appealing for its solidity.

We switched to a digital streaming source (through an analogue input) to play Dvořák's 'New World' symphony. The A1 continued to please, generating an expansive and nicely layered soundstage that stretched beyond our speakers, remaining pretty stable even when the music got demanding, with richly-textured instruments and the ability to convey subtle changes in dynamic intensity but also larger-scale dynamic shifts with conviction. Generally, this integrated behaved gracefully even when pushed very hard. If more conventional rivals today can pull ahead when it comes to outright punch and attack, the A1 remained listenable even as its dynamics compressed and its grip on the music waned.

Conclusion

This clearly isn't an amplifier for everyone. The fact that it runs so hot (and uses lots of power while doing so) will need consideration. The A1's relatively low power output could be another issue. If you are looking for the last word in analysis then this isn't the amplifier for you. Absolute detail levels and insight are pretty good, perhaps even surprisingly so given the age of the design, but newer rivals tell us more about the recording (resolution of detail is clearly an area that has progressed in the intervening decades).

But look at the bigger picture and you will find that the A1 remains good at conveying the energy and intent behind the music; you won't be left in any doubt about the emotions you are meant to feel.

It is hard to have anything but admiration for Musical Fidelity for bringing back such a classic amplifier in such a faithful way. This is a truly charming product, and we love the way it looks. If you want a taste of such classic hi-fi with the reassurance and reliability of buying new, you'll most likely agree that the A1 lives up to its name, even after all these years.

▲ A LITTLE LARGER — the new 2023 edition of the A1 is on the bottom here, showing how much larger it is than the original model on top. This helps significantly with heat dispersal.

SPECS

Musical Fidelity A1 $3000

Power: 2 x 25 watts into 8 ohms
Current: 25 amps peak to peak
Gain (max): 42dB, 32dB in Direct Mode
Frequency response: 10Hz to 40 kHz -1dB
Inputs: 5 x RCA line-level, 1 x phono (switchable mm/mc)
Outputs: tape out (fixed), preout (variable), speakers out
Dimensions (whd): 440 x 68 x 283mm
Weight: 10.5kg

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- Multibeam Technology
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- 10" Subwoofer

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KEF R3 Meta
standmount speakers

Metamorphosis

The R Series is the latest to get KEF's MAT disc treatment. Does the innovation help the already excellent R3 standmount sing still more?

SUMMARY

KEF R3 Meta
standmount speakers
Price: $3900

+ Transparent, refined sound
+ Even tonal balance
+ Innovative technology
– Best with space and good partnering equipment

The history of KEF is one big storybook of innovation and change. There's Raymond Cooke's original 'light-bulb' moment, actually a 'polystyrene cup' moment, realising that such pressed plastic might allow mass-produced cones to outperform the more laborious paper cones then used in loudspeakers. There's also been the long-running saga of the company's search for a perfect point-source dual driver — and even, more recently in the Blade, a fully coincident speaker design.

Most recently there's been the almost cult-like status quickly gained by the company's celebrated MAT (Metamaterial Absorption Technology) innovation. This involves an ingenious backwave absorption disc that has been transforming audio performance in KEF's recent speakers.

So the KEF R3 Meta standmount speakers under review here are an enticing prospect. They are part of KEF's updated R series, a revamped speaker range that now incorporates MAT. The R series is above KEF's Q series, and below (also not to be confused with) the higher Reference Series.

The individual speakers in the R Series are now all renamed with the 'Meta' suffix — so here we are reviewing the R3 Meta. But the series as a whole is not called the R Meta Series: it's still just called the R Series, but now with Meta.

Other Meta models we've heard so far seem to have been significantly elevated by KEF's latest innovation. And the KEF R3 from a few years back was a strong performer already. So will MAT take it to a new level?

Build & facilities

While the latest R3s certainly look striking, so did the pre-Meta versions: not much has changed on the surface here. In terms of the size, build quality and driver sizes, the R3 Meta is pretty much exactly the same as before.

Which is not a problem at all. These speakers are impeccably made, with finish and build quality to a high standard, striking in the indigo (blue) gloss of our review pair, which is a new special edition at the standard price of the gloss black, gloss white or walnut finishes.

The R3 Meta is the only standmounter in KEF 2023's new R Series, and it remains a three-way design, though you see only two drivers, because two are in the same place.

So at the bottom is a 16.5cm hybrid aluminium bass driver, with its unusual 'flat' appearance coming from a cone which has a two-part structure. The visible shallow aluminium skin on top of a paper cone allows the combination to achieve a stiffness and geometry that combines with a powerful magnet system to deliver a fast and punchy piston-like movement. This bass is kept clean and resonance-free by complex internal damping for the cabinet and a rear-firing bass port with unusually flexible walls, their flare and profile not only calculated to delay the onset of turbulence but also flexible to prevent resonances from colouring the midrange.

Then above this bass driver is the two-in-one magic of KEF's Uni-Q driver array, here placing a 25mm aluminium-dome tweeter right in the middle of a 12.5cm midrange driver.

The Uni-Q driver is KEF's 'single point' concept at work. Co-locating the tweeter and midrange keeps the high and mid frequencies focused across a wider area, which should speak to imaging and soundstaging, which are indeed long-regarded strengths of KEF's Uni-Q models, from the diminutive active LSX active speakers right up to the extraordinary Blades.

Why doesn't everyone do this? Because it's not easy to design two speakers in one. The first Uni-Q array was launched 35 years ago, and it is now in its 12th generation (see exploded diagram, left). In fact there have actually been countless more iterations than that, but KEF has streamlined the Uni-Q's history to specific advances that mark each generation: a moulded low-profile surround here, a new dome profile there. The tangerine waveguide came with Gen 8, while for Gen 12 it was the tweeter gap damper that marked the change, added in 2018 (to the previous R Series, indeed) to absorb any sound escaping into the gap between the tweeter and the cone. The result, says KEF, was a much smoother high-frequency response, improving detail and clarity.

And now there's also the MAT — along with which the R3 Meta's Uni-Q driver array has also been modified significantly, notably requiring a big hole through the structure for the dome's back energy to flow straight to the disc which does the absorbing.

So if you've been paying full attention, you'll understand that the Uni-Q version here is officially '12th-gen, plus MAT'.

"It's a rare combination — a speaker accomplished in all the 'hi-fi' ways and yet fun to listen to as well, with brilliance in imaging but also gifted a solid support..."

Going Meta

What is the MAT? It's a plastic structure the size of a hockey puck which sits behind the tweeter, offering a maze-like interface. The 'maze' has two layers, comprising a total of 30 slot tubes, each designed to absorb a particular frequency of the unwanted backward radiation from the tweeter into the cabinet. KEF claims that MAT absorbs 99% of these sound waves.

The result? Less distortion, clearer highs. MAT enjoyed such great debut success with the LS50 Meta speakers (below the R Series) that is has now been used even on the company's hyperconceptual Blades, and we can expect to see MAT all over KEF's ranges — although it was considered too pricey for adding to the little LSX II active speakers, we were told recently by KEF's VP of technology, Dr Jack Oclee-Brown.

We had some questions about this MAT when it first came out, including a friendly debate with Dr Oclee-Brown as to whether this really constitutes a true 'metamaterial'. These are defined by small-scale repetitive structures that give a material new properties. The changes here aren't that small-scale, and are definitely non-repetitive. So it's not a true metamaterial. But its effects are certainly real: it has made a true difference in the speakers we have heard that employ it.

Last time we spoke with the good Doctor, we asked whether the current disc design was optimised or whether it might itself be improved by generational change in either design — more channels, perhaps, or a different material. It currently operates at frequencies from 625Hz and up, he told us. It could be made more complex with more layers, he thinks, and if the channels became really small, then the material it's made out of might become important at certain frequencies. But for now, don't expect a MAT Mk2 to enter the scene.

Listening sessions

Getting the speakers set up and positioned doesn't take long. The best reults will come from placing the speakers on dedicated stands (their specific S3 stands as pictured overleaf sell at $1000 the pair), with ample space from a wall for the bass reflex port.

You can use them grilles on or off — the micro-fibre grilles with precision-cut holes are designed to deliver maximum performance (and style) when the speakers are covered, though we like to see and hear drivers in their unobstructed glory. And angling them even slightly towards the general listening position delivered a solid soundstage and convincing stereo imaging here, partly thanks to the Uni-Q driver array keeping everything focused even within a wide angle.

The R3 Metas simply flowed with every type of music thrown at them. There was the even tonal balance and insight of the LS50 Meta (and the older R3s) but with an additional layer of refinement, weight and openness that was instantly apparent.

And they didn't just grab our attention from the start, they kept the momentum going over long listening periods. The soundstage was wide open, giving breathing space to complex arrangements such as Radiohead's

The Meta-equipped R Series includes a centre speaker and Atmos modules, so everything required for home cinema as well as stereo listening.

15 Step as well as Ólafur Arnald's sparser piano pieces such as the meditative melancholy composition *Ljósið*. Agnes Obel's otherworldly vocals on her 'Aventine' album came through crystal clear and sound beautifully nuanced in an elegant, affecting performance.

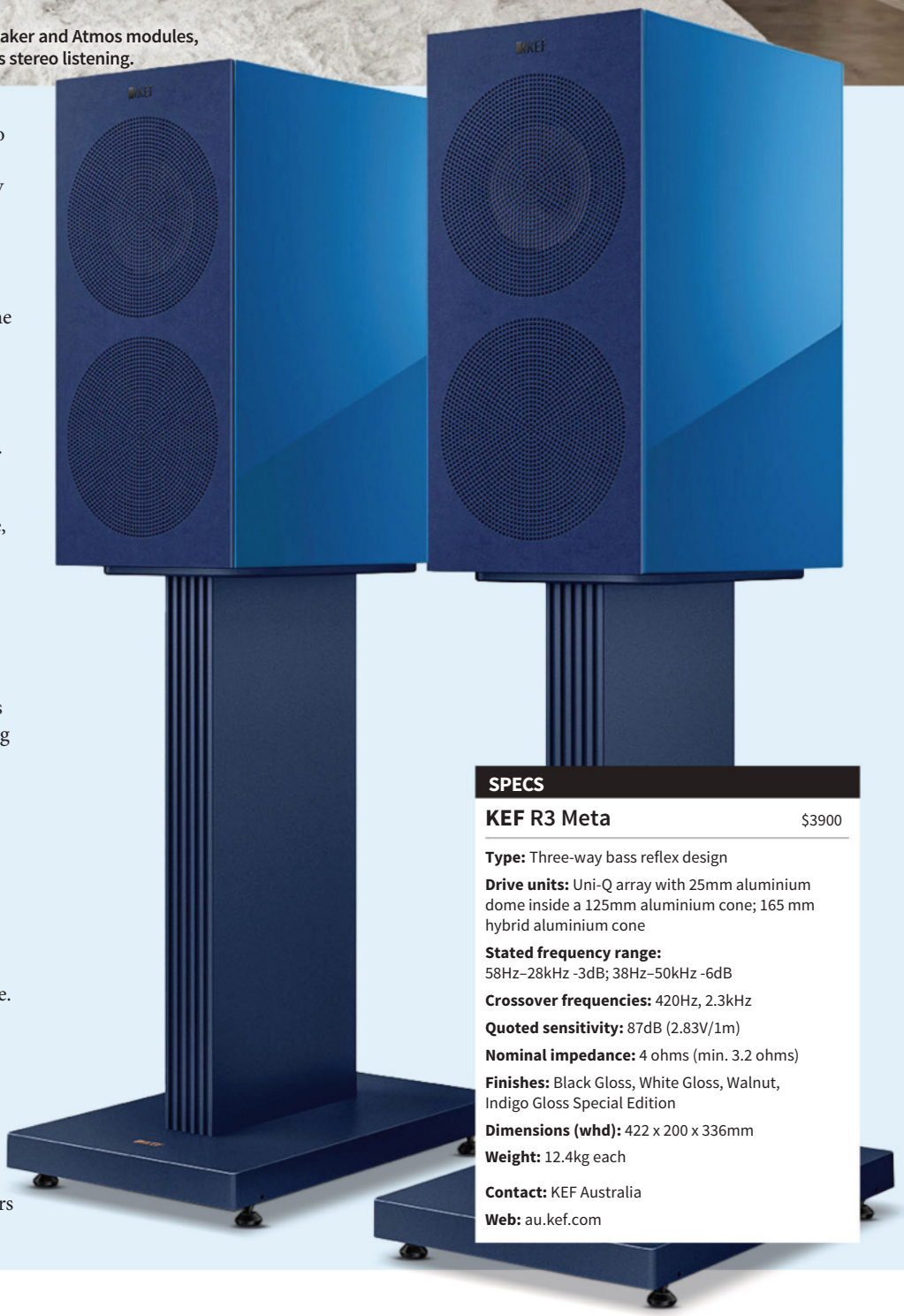
The detail and texture the R3 Metas were pulling from every song was addictive. With the initial pluckings of the violin and cello strings in Obel's *The Curse*, the weight of the bow across the strings had convincing depth and richness, rendering these instruments three-dimensionally in the space before the speakers.

So the Uni-Q driver array alignment of tweeter and midrange certainly seems a key to the R3 Metas' musically-cohesive performance, but overall the sound was benefitting from the dedicated bass driver which added an extra layer of spaciousness and deeper bass, giving an overall authority and solidity, yet also remaining dynamic and agile. Every note was etched with precision, and timing was spot on.

That might sound clinical, yet the R3 Metas also sounded so much fun. They had us digging out songs we haven't played in a while — *Pon De Floor* by Major Lazer, *The Real Slim Shady* by Eminem — winning us over with an infectious energy and playfulness, their meaty, driving basslines and slick rhythms as natural to the KEFs as the way they conveyed the emotional detail of vocals. They also sounded enjoyable both at low volumes and high, no mean feat for any speaker. These are hugely enticing speakers in design and in performance.

Conclusion

That's a rare combination — a speaker that is accomplished in all the 'hi-fi' ways and yet fun to listen to as well, a speaker with brilliance in imaging but also gifted a solid support below. These qualities should put the R3 Meta on the shortlist of anyone buying standmount speakers at this price: you will be entertained. +



SPECS

KEF R3 Meta $3900

Type: Three-way bass reflex design

Drive units: Uni-Q array with 25mm aluminium dome inside a 125mm aluminium cone; 165 mm hybrid aluminium cone

Stated frequency range: 58Hz–28kHz -3dB; 38Hz–50kHz -6dB

Crossover frequencies: 420Hz, 2.3kHz

Quoted sensitivity: 87dB (2.83V/1m)

Nominal impedance: 4 ohms (min. 3.2 ohms)

Finishes: Black Gloss, White Gloss, Walnut, Indigo Gloss Special Edition

Dimensions (whd): 422 x 200 x 336mm

Weight: 12.4kg each

Contact: KEF Australia

Web: au.kef.com

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Nineteen to the dozen

Vivid Audio Kaya S12
standmount stereo loudspeakers

It's Vivid's smallest speaker, with just 12 litres of internal space. Yet it loves going loud and it's not short of bass. What's its trick?

Vivid Audio's speakers are famously curvy. Its Giya range is described by the South African company as "a direct, deliberate challenge to every aesthetic and acoustic convention" — although some of the acoustic principles behind them are rooted in ideas that its chief designer Laurence Dickie had previously developed when creating Bowers & Wilkins' famous Nautilus 'snail' speaker, a no-holds-barred project that had been handed to Dickie after the passing of John Bowers himself.

Key to that design was the idea of tapered tube loading (TTL) to absorb the back energy from drivers, energy which would otherwise cause reflections within the cabinet and interfere with the forward radiation, colouring the sound. These tapered tubes contain wool fibre as a damping material, and this is increasingly compressed as the tube tapers, absorbing all sound by the end, so that nothing is reflected back though the diaphragm. Absorbing rather than merely containing the back energy is seen as key to the clarity of performance of Vivid's loudspeakers.

You can see this idea in action on any Bowers & Wilkins' speakers with the famous tweeter-on-top, and a 'Nautilus' tube behind it. But at Vivid Audio, Laurence Dickie applied his "exponential absorbers" as a standard solution for all the drivers, and the extraordinary shapes of the Giya

SUMMARY

Vivid Audio Kaya S12
stereo loudspeakers
Price: $10,500

+ Stunning clarity & detail
+ Happy loud – and best loud!
+ Unique Vivid design for speakers and optional stands
– No biwiring option

range are the direct result. There was nothing aesthetic about it: Dickie's designs were pure form following function. Yet as with that earlier Nautilus, their beauty is undeniable, as if we naturally recognise the appeal of a perfect engineering design.

"Turn them up. That's where the S12s come to life, it's how they surprise, it's when their detail and sound-staging merge with power and solidity of bass.

Kaya comes home

Beautiful the flagship Giya collection may be, but they're not for every home. That led to the 'Kaya' range. *Kaya* is the Zulu word for 'home', says Vivid Audio, and is used appropriately since Vivid Audio was originally founded in South Africa, and its production facilities are in the garden province of KwaZulu-Natal, while its design, technical and administration are a little further north… in West Sussex, England.

The whole Kaya 'home' concept was intended to extend Vivid's skills to sleeker and more compact enclosures (in relative terms), creating speakers that integrate more easily into smaller spaces — "perfect for rooms where the sound system is part of the space, rather than the main feature", as Vivid puts it. The company enlisted the aid of Matt Longbottom and Christoph Hermann for their industrial design, both of whom worked at Lovegrove Studios for industrial designer Ross Lovegrove, the man responsible for the exterior design of the KEF Muon, among other things.

We do like the naming convention for the Kaya range, another tilt to the engineering, since the numbers speak directly to each model's internal volume: from the 90 litres of the large floorstanding Kaya 90, through the Kaya 45 to the slender and attractive Kaya 25, down to the mere 12 litres of the latest model, these Kaya standmounters. This simple system of nomenclature is thus user-friendly, given that the curvaceous shapes preclude any other easy calculation of cabinet volume (immersion in water might be the easiest way, but no doubt problematic in the longer term).

While the other Kayas are called simply Kaya 90, Kaya 45, etc., these standmounters gain an 'S' to make that clear, so 'Kaya S12'. And there are dedicated stands, to which you might say 'meh' until you see them, as they extend the curve concept and make the S12s look still more space-age and other-worldly. The stands also provide security and stability for what are remarkably light loudspeakers that might be less secured merely sitting on random stands, especially if out into the room. The enclosures are formed from what Vivid calls RIMCast PM resin, a kind of initially liquid polyurethane that pours like water into a mould, reproducing the finest details.

And again this isn't done simply as a way of generating attractive shapes: the construction method also makes the enclosures very stiff when compared to wood.

The construction method also means that the outer layer can be tinted almost any colour you want, which is very handy if you want the speakers to match the décor of your room. We first saw the S12 in a marvellous tree-frog green (see overleaf) at the Australian Hi-Fi Show in April; however that is a 'bespoke' colour option that increases the price. The pair we later reviewed were in white pearl finish, one of the $10,500 standard options, with Piano Black and Oyster Matte.

The Kaya range follows all Vivid Audio speakers in using the company's D26 anodised aluminium alloy tweeter, which tackles break-up resonances in a couple of unusual ways. Firstly there's its shape, described as a Catenary Dome Profile (CDP). In geometry, a catenary is the curve formed when a long cable is supported at its ends and then hangs under its own weight — a hyperbolic cosine curve, this is, which differs from a parabola in having a less defined peak. Simple suspension bridges (those without chains or cables) hang in this natural catenary curve, and when inverted it is an efficient form of arch which minimises materials and will always support its own weight. Gaudi was a particular fan of catenary arches, and in more modern times the famous golden arches of McDonald's are also more catenary than they are parabolic in their curvature.

Use a catenary curve to describe a 3D domed surface and it turns out to have a first break-up mode almost an octave higher than a conventional spherical tweeter dome (to above 44kHz, we gather). This handily minimises resonances in the audible band and promises to keep the midrange particularly clear of irregularities.

In addition to their shaping, Vivid's tweeters use Laurence Dickie's innovation from some decades ago of adding stiffness by surrounding the dome's edge with a ring of highly stiff carbon fibre; this pushes break-up frequencies still higher.

The dome is mounted atop an edge-wound aluminium voice coil that is driven by eight radially polarised neodymium iron boron magnets. According to Vivid Audio, the magnetic

▲ The 'Kaya' range in ascending order of volume: Kaya S12 (12 litres), Kaya 25, Kaya 45 and Kaya 90 (90 litres). There is also a matching centre-channel Kaya speaker available, the Kaya 35.

flux density in the voice-coil gap that results is so powerful (2.4 tesla) that it could not use ordinary ferrofluid, and Ferrotec Corp (USA) was commissioned to formulate a special recipe specifically for the D26.

And behind the tweeter, hidden in the cabinet, is that fibre-damped, exponentially tapered tube which, according to Laurence Dickie: "has an acoustic performance identical to that of an ideal enclosure, being completely free of resonance or reflection."

The tweeter crosses over at 300Hz to the mid-bass unit, designated a 'C100L', a 100mm alloy cone unit with a notably bulbous dust cap, again an unusual shape which apparently pushes the cone break-up frequency out-of-band by increasing the frequency range over which the cone (and dustcap) move pistonically. Vivid Audio claims most manufacturers either use a dustcap simply to keep dust away from the voice coil or as a way of boosting high frequency output after the main cone has entered into its break-up zone.

And despite the relatively small cabinet of the S12, the mid-woofer still enjoys a form of exponentially-tapered tube loading. Indeed it was discovered that this would have to address not only the usual top-to-bottom cabinet resonances but also, in this smaller two-way model, horizontal resonances. Dickie experimented with a 3D dodecahedron of tubes, then a version folded up into a ball, but he ended up instead using the inside of the enclosure itself, with an inner casing (in maroon opposite) sitting inside the internal moulding (green), with a series of lateral ribs then forming the channels of the absorber, an arrangement Vivid has called an Omni Axis absorber.

The crossover board sits down the bottom, and offers a single pair of gold-plated banana-friendly sockets just below the small rear port, making bare-wire connections is a little fiddly, though not as much as with larger Kaya models, partly because the S12s are more easily moved around, being quite light (just 6kg each). The minimal weight is something which would also make us less worried about trying their other mounting option, a neat (and of course curvy) wall bracket.

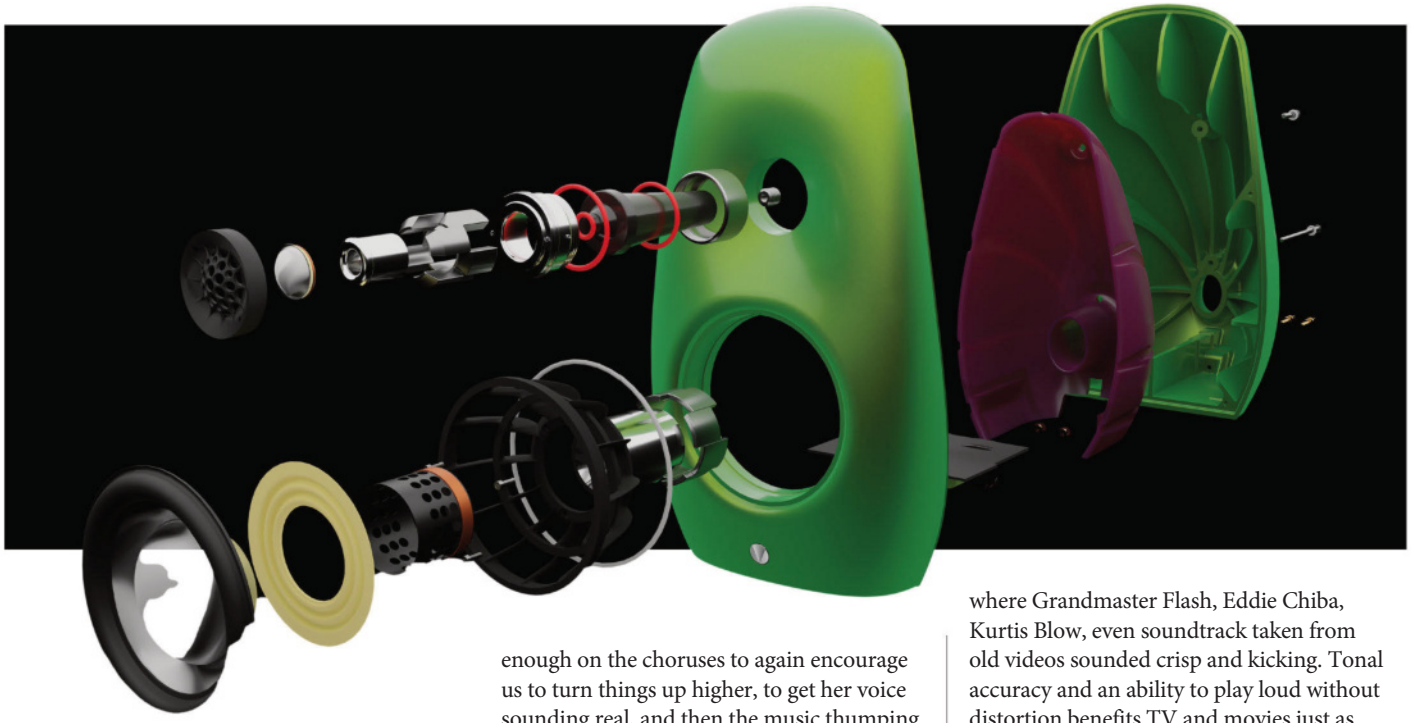
Performance

Any idea that the smallest Kayas might be all midrange and top but no bass was swiftly dispelled by hearing the rich bass underpinning the Dark-side mix of Peter Gabriel's *Four Kinds of Horses*, both the tight Tony Levin stabs of almost synth bass, and in the rolling drone which underpinned the whole soundscape, especially deep over the choruses. A sweep showed them picking up full strength above 160Hz, but with useful audible response right down into the highest 30s of hertz. While they offered nothing for the contrabass D (around 37Hz) of *Stereophile*'s organ bass tester, they had no problem sounding out the G (at 49Hz).

So no real worries on support from below; it's perhaps never going to dominate, so that we might have said the S12s are not going to be a dance lover's dream. But in fact the first time we cranked them into skyward territory was during their warm-up period to entertain a visitor who wanted to hear what these curious bulbous $10k standmounts could do. And her choice was French musician and DJ Clo-Zee — whose 'Neon Jungle' remixes are full of wide detailed audio cues which the Kayas portrayed magnificently, including the pulse of the synthesised bottom F on the first track, *Perfect (Of the Trees Remix)*: that's 44Hz, no problem, thank you.

The other bass delight for EDM fans is the speed of response here, the transient edges available particularly for the squarer pulses of electronic bass, and especially during any accelerating build-ups to drops — so tight, so much air-shifting available from the alloy bass cone that you could feel the pulses in the air.

This is perhaps the defining characteristic of the S12s across the frequency range: the sharp-edged clarity given to every element,



and the impeccable soundstaging that comes with this clarity of detail. This brought acoustic recordings to absolute life. The recently-released 1994 recording of Keith Jarrett playing sonatas by Bach's son Carl was spellbinding in its nicely simple stereo miking, and further showed the even range of these speakers from high to low, a true realism of tone.

As is often the way with highly revealing speakers, they can sometimes be a little too revealing of less than perfect recordings. We couldn't on this occasion play Alex The Astronaut's early and wonderful *Already Home* too loud, because the Kayas were pretty brutal on the boxy treated vocal; fine at moderate volume, but it just got boxier with more level.

This was unusual, because on the whole, the S12s just loved going loud; they beg for it. The better the production, the better they sound. 'The Dark Side of The Moon' (50th anniversary remaster) we turned up and up, so that we were in among the swirling synth lines of *Any Colour You Like*, enjoying Nick Mason's drums sounding astounding real, and were jolted by the flanged guitar break clanging in like a metallic bell before the guitar part becomes split across the stereo soundstage for the jam down into *Brain Damage*.

Look What You've Done by Radio Free Alice (the Melbourne band, not the Darlinghurst record shop) sounded fantastic, a big tom boom from the right channel before settling in all jangly Cure in the centre, and all that Vivid tightness allowing the kick drum to smack through the central scrum, over which the vocals emerged sounding engagingly real.

Female vocals were equally well served: Diana Krall was real and perfectly poised out in front of the mix singing 10CC's *I'm Not in Love*, while Taylor Swift on *Cruel Summer* sang out clear on the verses, though recessed enough on the choruses to again encourage us to turn things up higher, to get her voice sounding real, and then the music thumping and immersive. This was something of a characteristic which emerged: at lower levels vocals could drop back in the presentation, perhaps the level of resolved detail in the rest of the mix had this effect, but the answer was always the same: turn it up to get the vocal sounding real, and the surrounding music would just burst into even greater life.

When we did this with *Getaway Car*, the S12s again revealed their available bass by rolling out the fundamentals on the powerful choruses — though again, to their best when they were playing nice and loud.

The reason we could keep turning up the Kaya S12s is because they remained so solid and audibly free of distortion. We had them at levels where lesser standmounts would scream and we'd have to drop them lower. Such is the balance here that you simply don't realise how loud they are running. It's great! If you audition a pair, we recommend you settle in, then nudge and nudge them up, and take the time to enjoy them loud; it's what they do best.

Beyond music

We had the S12s for about a month, and for part of that time we had them connected to our TV audio; they looked spectacular flanking the TV even with their rubber feet on a TV bench, while they will surely qualify as artworks in their own right when free-standing on their bespoke curvy supports flanking a wall-mounted screen.

We ran the Bowie doco *Moonage Daydream* on Netflix, and the G12s made it all so clear — magnificent and musical, wide and involving, diamond-sharp and again tight, tight, tight. This snap was doubly evident on the beats and rolling rises that chart the soundtrack of *Hiphop Evolution*, where Grandmaster Flash, Eddie Chiba, Kurtis Blow, even soundtrack taken from old videos sounded crisp and kicking. Tonal accuracy and an ability to play loud without distortion benefits TV and movies just as much as music, so don't hesitate to use the Kaya S12s in such a dual role.

Indeed there's a Kaya 35 centre speaker, so with a suitable subwoofer you could have a whole Kaya home cinema set-up of gleaming bulbous speakers around the room; the clarity and kudos would be mega!

What didn't we like? Nothing! Only that if you listen to them at an ordinary volume, you won't be hearing them at their best. It's what they can do with a good amp at high levels which makes the Kaya S12 standmounts stand out musically, while their appearance certainly makes them stand out visually. Especially in tree-frog green.

Conclusion

Up for an audition of the Kaya S12? For God's sake turn them up. That's the level at which Vivid's design ideals are confirmed; it's where the S12s come to life, it's how they surprise, it's when their wonderful detail and soundstaging merge with a surprising sense of power and solidity of bass. Remember that their beauty is not skin deep; it lies within.

SPECS

Vivid Audio Kaya S12 $10,500

Drivers: D26 26mm alloy-dome tweeter, C100L 100mm alloy-cone mid-bass

Sensitivity: 85dB @ 2.83VRMS, 1m

Nominal impedance: 8 ohms (5.3-ohm minimum)

Quoted frequency range: 45Hz–25kHz -6dB

Dimensions (whd): 400 x 237 x 254mm (but curvy)

Contact: Avation

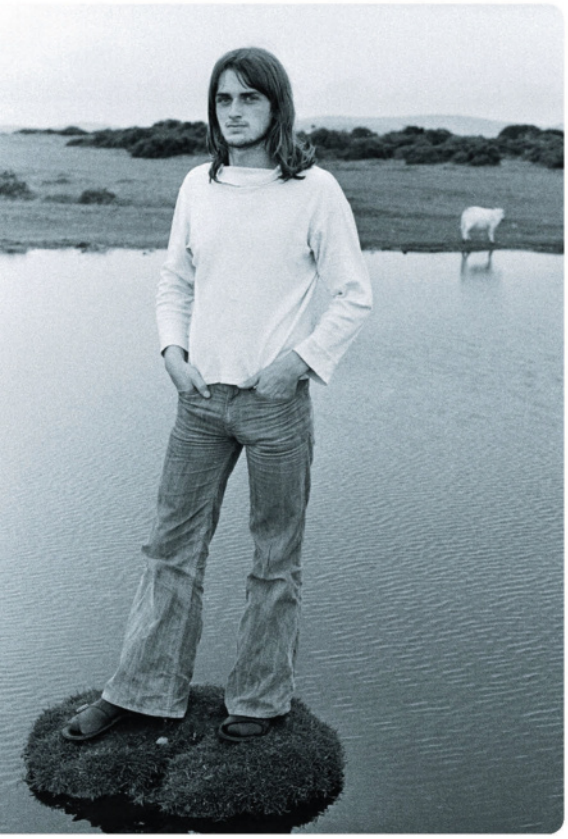
Telephone: 07 5580 3300

Web: www.avation.com.au

MAGNUM OPUS

Fifty years ago, a teenage hopeful's many-times-rejected demo found favour with the maverick young boss of a new record label, who decided to give it a go. The result, released in May 1973, was a commercial and cultural phenomenon: Mike Oldfield's 'Tubular Bells'. WORDS: **GRANT MOON**

It's autumn 1972. John Cale is vacating The Manor, a picturesque residential studio nestled in the Oxfordshire hills of the UK. It's a recent acquisition by a budding music impresario called Richard Branson. The next artist booked into the studio is a wan, taciturn 19-year-old virtual unknown called Mike Oldfield. Noticing a shining silver set of tubular bells among Cale's equipment, Oldfield asks if he can add it to the two dozen instruments he'll use to record his one-man symphony, tentatively titled *Opus One*.



Re-titled *Tubular Bells* and released the following year, after a slow start the almost all-instrumental album went on to become a commercial and cultural phenomenon, and launched Oldfield as one of the UK's most acclaimed composers. The first album to be released on Branson's fledgling Virgin Records, its massive worldwide sales bankrolled the label for years to come and set Branson on course to becoming the country's most recognisable captain of industry.

Thirty-six years later, in 2009, with his Virgin contract ended and the rights to the album now his own again, Oldfield, the arch-tinkerer, remixed and reissued it. Surely it's difficult for him to remain objective about a record he knows inside out?

"It's actually easier now," he said back in 2009. "Listening back, the sound quality is actually great, and the most amazing thing about it was that it was all first take. Nobody, myself included, would dream of doing that now. One of my first decisions about this remix was to leave it as played. There's a spontaneity about it, a dynamic drive that would've been lost, so I left in the squeaks and pops and the few bad notes. They're far overshadowed by the power and purpose of the playing."

Back in the day, the music's main purpose was to keep the troubled teenager on an even psychological keel. A loner since childhood, Oldfield suffered from a sense of otherness, amplified by his mother's mental illness and alcoholism. He himself came to rely heavily on the bottle. And one extremely damaging LSD trip led to decades of crippling panic attacks.

Out of the Sixties

Mike Oldfield discovered his talent for music early on. He began his career on the 60s folk circuit in acts including The Sallyangie, a duo with vocalist sister Sally, and later Kevin Ayers' Whole World, as bassist and guitarist. By then, rock's horizons were expanding.

"In the late sixties, progressive music was what everybody wanted to make," he remembers. "There was experimentation all over the place; we were all pushing boundaries seeing what could be done. I was very much part of the live music scene, going up and down the motorway, and we'd often be on the bill with groups like Pink Floyd, Free and even Black Sabbath. I never set out to absorb any influence, it was all just there."

Oldfield absorbed eclectic musical ideas, however: classical structures, minimalism, unusual scales and odd time signatures. Prior to 'Bells' ringing his name around the world, a rough demo he recorded had been rejected by every record label he sent it to. But when he first set foot in The Manor in 1971, as bassist for Jamaican singer Arthur Louis, the studio's resident engineers Simon Heyworth and Tom Newman heard promise in the youngster's recording. They passed it on to Manor owner Richard Branson and his

GETTY X2

TO THE MANOR BORN: Mike Oldfield in his natural habitat in 1973.

Oldfield in serious mood, and (right) displaying a little of that "Monty Python silliness".

business partner Simon Draper. A year later he was invited to record the piece at The Manor for Branson's new Virgin Records label.

"It was a lovely big country house with a complete recording studio," Oldfield recalls. "Lots of people running around doing things. We had a cook so I'd get great big plates of wonderful food. I made lots of new friends."

With instruments ranging from organs to mandolins to Cale's tubular bells, Oldfield set about recording his *Opus One*, filling 16 tracks of tape with dozens of overdubs to achieve the sound in his head. *Part One* was finished in one manic week, with the voice of the 'Master Of Ceremonies' provided by Vivian Stanshall of the Bonzo Dog Doo-Dah Band, who'd arrived at the studio early for their own recording sessions. *Part Two* came together slowly during studio downtime over the coming months. For its creator, the whole process was cathartic.

"You can hear it in the music. It was the only time I felt sane and vaguely happy. I suppose it describes in a nutshell the anguish of teenagerhood, which most people can relate to. It personifies all that.

"Nothing can take away from the fact that I'm very, very proud of the composition, the way one idea runs into another idea and the variations of ideas scattered around the place. It's got a great introduction, great riffs, lovely little tunes. It's fortuitous that Viv Stanshall was there at that time. And what a good idea to put the bell in there. It all seemed to fall into place, as if some wheel of fortune had swung in my favour at that time."

Artist Trevor Key was commissioned to design its now iconic cover, and the re-titled 'Tubular Bells', was released on 25 May 1973 as Virgin Records' first-ever release. And with Pink Floyd's 'The Dark Side Of The Moon' having landed two months earlier, the progressive era was by then in full flow.

Oldfield's one-man symphony earned rave reviews in the press and won fervent support, notably from Radio 1's John Peel. 'Tubular Bells' entered the UK Top 10 and stayed in the chart for five years straight. Worldwide sales were spurred further when William Friedkin used the haunting opening section for the soundtrack of his horror film *The Exorcist*, which brought Oldfield a Grammy Award for Best Instrumental Composition in 1975.

Still plagued by the panic attacks and a morbid fear of flying, Oldfield refused to take the album on the road at home or in the States, despite Branson's pleas. He did agree to doing one concert, though, at the Queen Elizabeth Hall, but only after Branson gave him his vintage Bentley as an incentive. Oldfield also prepared a tourable, orchestral version of the album. "I didn't like it too much," he says. "It was Virgin's idea because at the time I didn't want to go on tour."

LEFT: BARRY PLUMMER; RIGHT: GETTY

◀ **COVER DESIGN: The idea of using 'bent' Tubular Bells was Oldfield's own, after he dented the set of bells left behind by John Cale. Trevor Key was the designer and photographer tasked with the album cover: he first shot the seascape (and the flaming bones on the back cover) on the Sussex coast, while his design for the bell was modelled and shot in a studio before being overlaid on the photo. Key supposedly got just £100 for his work, but it secured more work with Virgin, including the company's famous looping logo which Key created with designer/photographer Brian Cooke.**

Success and more Bells

Oldfield subsequently tempered his demons through Exegesis therapy (the root of which is based on the idea that one's own problems are self-caused and not the fault of others), and his post-'Tubular Bells' career includes many other highs: another No.1 with '74 follow-up 'Hergest Ridge'; cracking '75 album 'Ommadawn'; his No.4 single *Moonlight Shadow* with Maggie Reilly in '83; his underrated soundtrack to Roland Joffé's harrowing film *The Killing Fields*; his acclaimed classical suite 'Music Of The Spheres' in 2008.

Yet it's 'Tubular Bells' for which he will forever be best known. After his original, contentious, contract with Virgin expired in '92, Oldfield delivered 'Tubular Bells II' for Warner Bros, a No.1 hit. Six years later the brand continued with 'Tubular Bells III', a top-five success. But it hasn't all been winners.

"The re-recording rights for 'Tubular Bells' came back to me in 2003, which encouraged me to re-record it, for its 30th anniversary. That was great fun to me, but nobody else seemed to like it. I'm scared to listen now in case I think it was a big mistake!"

That re-recording flopped, perhaps because the so-called flaws in the original had become part of its very fabric.

Four years later, the *Mail On Sunday* did a deal with EMI/Virgin to give away a CD of the original 'Tubular Bells' free with the paper. Oldfield was furious at the time.

"It devalued it in a way. It was like saying, this music's so old that we'll just give it away. On the other hand, it marked the end of that era and gave me the impetus to really want to remix it."

That opportunity arose when the album's absolute rights devolved to him in 2008. In the new mix the squeaks, pops and duff notes may have survived, but there was been one high-profile casualty.

"The original bell had some distortion on it, which was impossible to get rid of. In the mid-seventies I was convinced to replace the bell with one that didn't have distortion, and I foolishly agreed, and we rubbed it off. We haven't been able to track down the original multitrack master — I've been working from a copy. I was pulling out my hair thinking: 'What can I do?'

In the middle of *Part One* there's a simple flute tune and in the background is the same bell. It was playing some of the right notes, so I spent days reproducing exactly the original bell using that, and with some jiggery-pokery I think it's even better than the first one now, and it hasn't got the distortion."

Yet he was also mindful of keeping the mix in balance with the original version.

"The beginning has a spooky feel that reminds you of things like *The Exorcist*, and if you clean it up too much then it doesn't have that. I didn't duplicate some of the production, the phasing and flanging; we were trying to be modern in 1973, now it didn't seem necessary. I hope I've done it as best as I could — I certainly enjoyed doing it."

With decades of perspective, its creator has definite view on the reasons for the enduring success of 'Tubular Bells'. But just be careful what pigeon holes you pick.

"I've got no patience for people who call it 'new age' or who go on about it being a concept album. It's not telling a story, there's no concept of anything. What it does have is extremes — delicate mandolin sections, the pounding rock of the 'caveman' section, the next section is the dreamiest little piece. Also I think people miss the humour in it. There's a honky-tonk piano with drunken people humming along, the Sailor's Hornpipe, it's got that Monty Python silliness. There's been nothing like it, before or since." +

Tom Newman

Original album producer Tom Newman talks a load of Bells

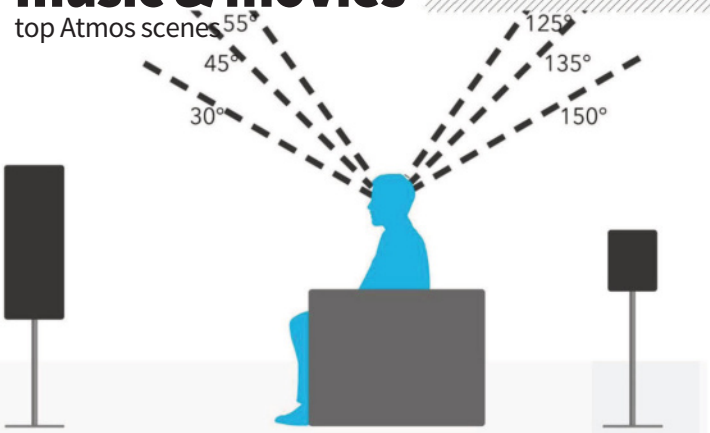
"I think it's an album that everyone's heard at some time or another," says 'Tubular Bells' 1972/3 producer Tom Newman. "I feel a lot of young people have used it as a way of getting an introduction into the world of modern classical music."

Newman had been rhythm guitarist with UK psychedelic band July, but by 1970 he was working with youthful Virgin Records owner Richard Branson, helping to build the now legendary The Manor studios in Oxfordshire. It was during this time that Newman became acquainted with 18-year-old Mike Oldfield.

Oldfield gave a demo tape to Newman, and he in turn passed it on to Branson. From there began one of the most productive and successful, if unheralded, artist/producer link-ups in music history.

"It was one of the first albums to explore multi-track recordings," Newman says of 'Tubular Bells'. "We used the 16-track facility to its greatest extent — and beyond. The number of overdubs we used was incredible. It always amazes me that ten years after we did the album, you could buy exactly the same sixteen-track set-up for about £2500. It cost us £25,000!"

Alongside producing a number of records including 'Hergest Ridge', 'Platinum', 'Islands', 'Amarok' and 'Tubular Bells II' for Mike Oldfield and other artists (among them Hatfield And The North, Sally Oldfield and Doll By Doll), Newman has continued a career as a musician, and released more than a dozen of his own albums, beginning with 1975's 'Fine Old Tom'. His most recent album is 2021's 'A Faerie Symphony II'. *JE*



Dolby Atmos
top demo scenes

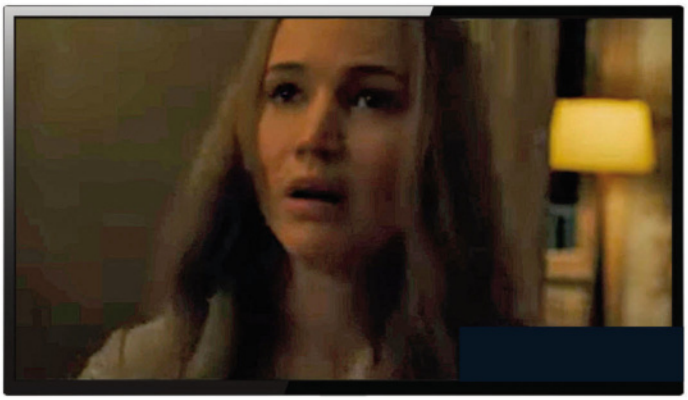
To test your Atmos-compatible gear, or just to thrill your ears, here are some more great scenes to track down with an Atmos stream, or even better, to invest in a disc copy, for true uncompressed Atmos action. Got a favourite Atmos scene yourself? Let us know!

MAD MAX: FURY ROAD (2015)

The hunt...

Former cop Max Rockatansky is adrift in a world that's been engulfed by the desert, and haunted by the memories of those he has failed to save. Visually it is relentless, and while you certainly wouldn't call the soundtrack subtle, it is incredibly focused and stunningly layered, directing the viewer's attention within the often dense picture while maintaining an epic sense of scale.

From gunshots echoing through the desert wasteland and sandstorms tearing overhead, to Max's internal headspace (and often mumbled dialogue), this two-hour chase opera boasts impressive dynamism and some exceptional moments of sonic respite. The hunt scene shows how Atmos can help ground even the most outlandish of scenarios. As the cars and their unique engine sounds steer across the soundfield, they are accompanied by Junkie XL's furious orchestral soundtrack. Distorted guitar riffs flare up whenever the camera cuts to the Doof Warrior and his double-neck flaming guitar; angry drums underpin while strings and beats are carefully woven into the action.

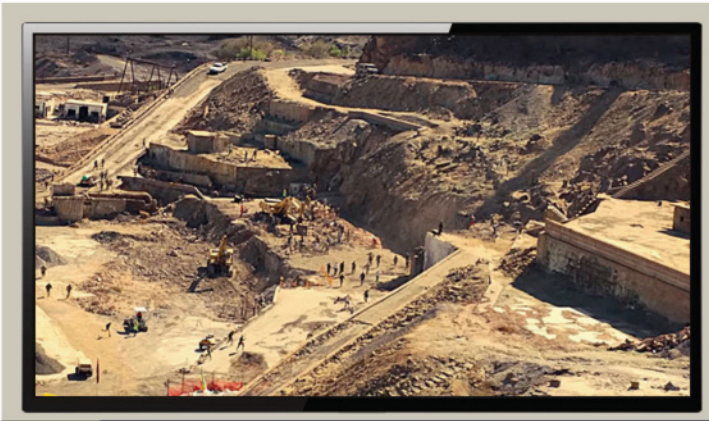


mother! (2017)

The final third.

Part home-invasion horror, part climate-change parable, *mother!* has an ingenious Dolby Atmos soundtrack that does all the heavy lifting. Mostly it is filmed subjectively from central character 'mother's perspective, either over the shoulder, in close-up or POV, and the only long shots are when she's alone.

The soundtrack reflects what mother hears. Everything, not just what is shown on screen, is given a defined position that is always slightly elevated. The house's presence as a character is intensified through sounds such as creaks and rattling pipes manipulated to become more human-sounding. As the invasion progresses into a fever dream, these small exaggerations increase and become overwhelming in number and intensity. Even with chaos erupting and people swarming the house, dialogue and actions remain detailed, clear and precisely placed, fading in and out of mother's focus. The film builds into a sustained bedlam with some tremendous low-end effects to test your subwoofer.

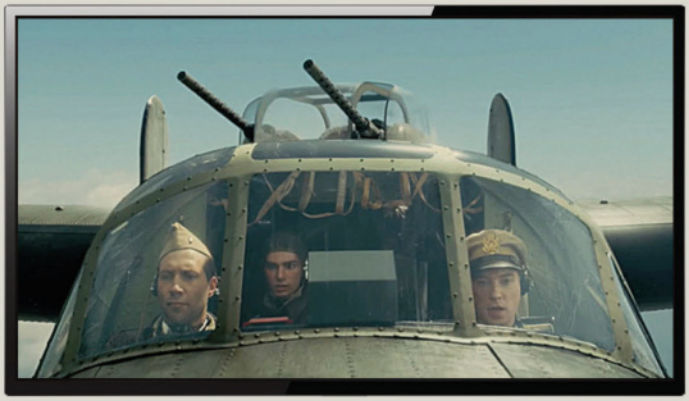


UNCUT GEMS (2019)

The opening scene.

Howard (Adam Sandler) is a jeweller in New York's frantically paced Diamond District who attempts to auction off a rare Ethiopian opal for a massive return. The opening colonoscopy proves a minor discomfort within the grand scheme of a fake marriage, while hiding his girlfriend from his children, and he's $100,000 in debt to a nasty loan shark, and selling the opal is his escape plan.

As he continues to fall from one predicament to another, each time using the source of his problems as the solution, the sound design walks a fine line between unwatchably overwhelming and grippingly immersive. There's an element of Greek chorus in the meditative vocalisations of the expansive synth score. The opening sequence begins outside an Ethiopian quarry where a miner has just been injured, but the external melee switches to two lone pit workers deep in the reverberant bowels of the mine. The score then bursts out and off the screen, drawing us in before segueing ingeniously into Howard's world.



UNBROKEN (2014)

The bombing run.

Angelina Jolie's *Unbroken* is an early example of the power of Dolby Atmos, as well as having brilliant sound design in its own right. The soundtrack is glorious from the off, opening with a reverberant choral score that slowly gives way to the hum of an approaching squadron of bombers, with each propeller given an individual dimension as the rotor blades buzz past. Dolby Atmos is about more than just height; the extra axis of sound means the designer can place effects into the soundfield and add to the overheads. This scene has both, as the Japanese planes swoop, followed closely by rattling machine gun fire spiralling after them.

There's a real sense of contrast in size and exposure inside the aircraft as we switch between locations. Despite the roar of the wind and the mechanicals of the plane, sounds such as the gunner's chair, the radio dialogue, even the creaking of an old leather jacket are all detailed and brought in and out of focus as the dog fight unfolds. Small wonder this was a popular test scene for AV systems after release, and it's still a buzz.

SOUL (2020)

The Great Before/New York

Soul centres on middle-aged jazz musician Joe, still waiting for his big break while he teaches elementary school. As a golden opportunity arises, Joe meets an untimely end but then gets waylaid in 'The Great Before', where souls are made before they come to Earth. He meets '22', a soul who isn't keen on becoming human.

Dolby Atmos is used to build two diverse (realistic and otherworldly) environments, with liberal use of all the available channels creating an enthralling sonic experience. In 'The Great Before', the rears and overheads are filled with springy reverb and a large, enveloping soundscape. The soft atmospherics remain intentional and precise, melded with Trent Reznor's delicate electronic score. In contrast with the ethereal eccentricity of The Great Before, Soul's autumnal New York is tactile, bustling and full of life. There's a great surge of sound when Joe and 22 first leave the hospital: it sweeps over the viewer and doesn't let up. The first cacophony of NY is overwhelming, from the guttural pile driver and passing firetrucks to the crowds and helicopter overhead.

LE MANS '66 (2019)

Willow Springs.

The set piece 30 minutes of racing that arcs the final third of this movie is a sonic masterclass in authenticity and power. But for giving your surround system a quick runabout, the shorter Willow Springs race near the start is ideal. The layers of sound are visceral and thrilling without being overbearing.

As Christian Bale steers from the open cockpit of his Ford Cobra, the audience is buffeted from all sides, surrounded inside the cabin by the vibrations of the smashed windshield, rattling suspension and gear change transients. Meanwhile, in seamless transitions to exterior shots, the continuous directionality of the cars as they zip across the screen, or skid off the track, is precisely located. Pay close attention to the internalised moment where all the focus is on Bale's breathing, and harmonic drones subtly start to creep into the rears. It's an impressionistic bit of sonic storytelling in the midst of action that naturally envelops the viewer without feeling distracting or disjointed.

NOPE (2022)

The story of Ghost.

Any number of scenes showcase the awesome Dolby Atmos soundtrack of this movie, but we've picked an earlyish one that tells the story of Ghost, one of the horses on the farm at the centre of the story. Without giving too much away, there's something peculiar in the skies above the farm, and this early scene does a brilliant job of ratcheting up mystery and tension through the soundtrack.

A good Atmos system will place the incidental sounds of the desert all around the room, and there's lovely detail to the crunch of Daniel Kaluuya's boots on the gravel and to the concerned snort of the unsettled horse. Then, as you strain to try and figure out what's happening above, a much louder, bassier thump scares the life out of you. But it's just music. A classic jump scare, and you've fallen for it.

Voices echoing across the rolling landscape, that peculiar-sounding 'wind', and then the horse, which you can no longer see but you can hear. It doesn't sound happy, and how has it got up there?

music & movies

new music from old names

ADAM KENNEDY

GIRLSCHOOL *WTFortyfive?*

It's (no) different for Girls.

It has to be said: what a dodgy title for an album. We appreciate that Girlschool are celebrating a landmark anniversary, having formed in 1978 (although purists might point out their Painted Lady beginnings three years previous), but surely they could have come up with a better title for their first full-length record in nigh-on 10 years? 'Stars On 45', perhaps? Or maybe 'Forty-Five Hundred Times (Not By A Long Shot)', to borrow a Status Quo song title?

Still, to have survived for so long, and with two original members — Kim McAuliffe and Denise Dufortyfive — still staggering is quite an achievement. (Just imagine the number of GCSE retakes and hours spent in detention along the way.)

Thankfully, 'WTF?' doesn't suffer from the same lackadaisical malaise as WFH. But TBH, although there are many moments of classic Girlschool shoutalong brilliance here, the album does dip in places. Case in point: the cack-handed *Invisible Killer* is plainly a hangover from the covid era, when what we demand from Girlschool is a hangover induced by consuming a quart of Lambrini and a fistful of prawn crackers. Oh, and does anyone really need a song called *It Is What It Is*, surely the most annoying mantra of recent times?

But the pros massively outweigh the cons, the best songs being the ones that pay homage to the band's Lewis-leathered, lager-lathered heyday. The steamin' *Barmy Army* — complete with the words: 'We love you all, our rallying cry: "Cheers you lot!"'— will resonate with Girlschool fans of the late 70s/early 80s. Let us note that said fans were almost universally of a male orientation; the fact that McAuliffe's (and, let us not forget, Kelly Johnson's) marauders were — obviously — female mattered not a jot. But it has to be said that lyrics such as 'You make me feel like the cat's got the cream/I really love it when you make me scream' (from the rollickin' *Are You Ready?*) are the antithesis of modern-day jiggery-wokery.

The best song here — closely followed by a ridiculously riotous cover of Motörhead's *Born To Raise Hell* — is the simplistic stomper *Party*, a heart-warming hark back to Girlschool's scuzz-tastic early daze, full of blink-and-you'll-miss-'em, era-specific name-checks: *Wig-Wam Bam*, *Take It All Away*, *Yeah Right*, *Since You Been Gone*, *Ride A White Swan*, *Demolition Boys*, *Blitzkrieg Bop*… the list goes on.

As do Girlschool, thank gawd.

Geoff Barton

JONI MITCHELL

Joni Mitchell At Newport

A starry celebration.

The healing power of music is real and proven, and when Joni Mitchell was recovering from the aneurysm she suffered in 2015 the Joni Jams sessions she held in her home can only have helped her immeasurably. In 2022 the folk legend delighted the audience at Newport – a stage she'd last appeared on in 1969 – by appearing with an all-star cast of friends and admirers for a celebratory whirl though some of her best-loved songs.

Brandi Carlile, the evening's host, draws sweet stories out of Mitchell, while the likes of Marcus Mumford, Lucius and Taylor Goldsmith provide a steadying bedrock. But it's the moments when Mitchell herself takes centre stage, that gorgeous voice undimmed, that truly make the skin tingle, from the joyous payoff at the end of *Big Yellow Taxi* to the heart-wrenching beauty of *Both Sides Now*, a song as close to perfect as you'll find.

Most of all, though, this is a celebration of a unique and special talent, an album packed with absolute love and admiration that is moving and inspiring in the extreme.

Emma Johnston

NILS LOFGREN

Mountains

An emotionally charged return.

Nils Lofgren has long been a singular presence in rock, his enduring stint as guitarist with Springsteen's E Street Band overshadowing a stellar songwriting career spanning 50 years.

Recorded at home in Scottsdale, Arizona, with the help of a host of famous friends including Neil Young, David Crosby and Ringo Starr, 'Mountains' finds the 71-year-old railing in typically melodic fashion at a world in which progressive 60s' values have been superseded by Trumpian self-interest.

'Life, liberty, justice and freedom for all,' he sighs in a jaunty *We Better Find It*, while the vitriolic lyrics of *Dream Killer* are sweetened by a sun-flecked drive-time arrangement. *Won't Cry No More (For Charlie Watts)*, a tribute to the sadly departed Stone, is a fan-friendly nod to the classic *Keith Don't Go* from Lofgren's 1975 solo debut.

Paul Moody

YUSUF / CAT STEVENS

King Of A Land

The kindest-sounding soul in rock returns.

Yusuf/Cat Stevens enjoyed an early 75th birthday celebration performing in the 'living legends' Sunday teatime slot on Glastonbury's main stage, an honour befitting his longevity and continuing appeal. And his latest album 'King Of A Land' demonstrates why so many people hold such deep affection for the singer-songwriter; it bursts with the wide-eyed, childlike wonder that has underpinned so much of his work, interwoven with his uniquely kind, gentle and spiritual voice of wisdom.

It's not just filled with the gossamer acoustic folk he made his name with, although *He Is True* is a particularly fine example of that. Lyrically it's steeped in nature, religion and the urge to cure the world's ills, and he stretches his wings with the Tom Petty-style rambling rocker *Pagan Run* and the bouncing Americana of *All Nights, All Days*, and *How Good It Feels* even features a burst of Tchaikovsky's 'Swan Lake'. Closing track *Take The World Apart* is a finger-snapping moment of unadulterated joy in the same vein as his 1970 classic *If You Want To Sing Out, Sing Out.*

Yusuf has always found — and exalted — the beauty in simplicity, and this album is a great, non-cynical reminder of why he's so special. **Emma Johnston**

PENGUIN CAFE

Rain Before Seven

Exquisite fifth.

As ever with all things Penguin Cafe, rhythm rules here, yet there's a renewed sense of freedom on these instrumental pieces, due to the album being conceived while central force Arthur Jeffes was stuck in Tuscany during lockdown.

The emotional release of his eventual return to the UK is pressed deep into the cinematic swells of *Welcome To London.* The racing *Find Your Feet* is flooded with much the same thing, as Jeffes and string arranger/musical director Oli Langford inject various flavours into the mix (balafon, cuatro, ukulele and viola included). But for all its dashing delights, this is a masterclass in nuance and atmosphere, the elegiac *Second Variety* built around piano, balafon and lap steel soundscaped by Alessandro Stefana; *Might Be Something* pivots towards a soft-focus horizon of unhurried jazz, strings and brushed percussion. **Rob Hughes**

GETTY

PUBLIC IMAGE LTD *End Of The World*

A fitting tribute to John Lydon's late wife.

PiL albums so often come packed with plenty of snarl, the odd rant and a good dollop of sweary humour. And while 'End Of The World' isn't short of all of the above, it is also a record bound by a layer of sadness we've rarely seen from frontman John Lydon. This album's poignant first single, *Hawaii*, was written by the former Pistols frontman as a love letter to his wife Nora Forster who had been battling Alzheimer's disease since 2018, and became all the more heartbreaking when she died in April this year. The ballad reflects on the happier times the couple spent on the sunny Pacific isles, and finds Lydon at his most vulnerable as he sings softly: '*All journeys end, some begin again, and we're here, you and me/Hawaii (Hawaii), remember me, I remember you*,' over a gentle drum beat and a shimmering guitar line. It's arguably one of the finest songs he's ever written, despite it being his saddest.

Car Chase, meanwhile, is a belting slice of electro-rock — reminiscent of the Lydon-sung *Open Up* on Leftfield's 1995 album 'Leftism' — on which he wails: '*Car chase, I don't get bothered I don't get bored I get ignored*' over bulldozing synths. The song, which tells the tale of a patient who constantly breaks out of a mental institution during the night, includes one of the album's funniest lines in: '*I like to think that I'm starkers/On my head I carved a big question mark.*'

By his own admission it's trademark PiL. And you wouldn't have it any other way. The same goes for the title track, which opens with Lu Edmonds's rollicking guitar before it gives way to Lydon's shouty vocals. Elsewhere, the sea shanty-chanting *Penge* comes on like the epic Viking voyage the ranty frontman recently heralded it to be, but it's a bit daft even by their standards. Far better is the electro-stomping *Being Stupid Again*, the rhythmic *Down On The Clown* and the observant *Strange*.

In spite of all the adversity thrown his way, it's amazing that at 67 Lydon and his band are still producing some of their best material. And on this form there's plenty of bite in this cranky old dog yet. *Damian Jones*

music & movies

old music presented in new & exciting ways

JZ/PLAYGROUNDAI

VARIOUS ARTISTS
Round And Round: Progressive Sounds Of 1974

Five hours of quality prog from a key year in the genre's development.

Astonishing to think that all the dazzlingly inventive music compiled for this four-CD clamshell box was made in the same year. Naturally, journalist and label-catalogue consultant Mark Powell's informative sleeve notes are careful not to suggest 1974 was anything like prog's year zero, however. Rather he holds that it saw a growing appetite for lengthy, conceptual songs made by questing folks who knew their way around a fretboard/keyboard. He also notes that the year in question saw some of prog's most diverse influences coalesce.

Lapped up by a vast student fanbase of ardent gig-goers, prog music was by then often outselling rock and pop. 'Round And Round' acts as a decent, era-specific sampler, highlighting what prog artists learned from jazz, classical, folk, psychedelic music and more. Cherry-picking songs by lesser-known acts as well as ones by prog household names, it would make a lovely gift for that pal who'd likely warm to Hatfield And The North's *Son Of There's No Place Like Homerton* if only they'd switch off Iron Maiden for the requisite 10 minutes and 13 seconds.

While it's hard to quibble with the inclusion of such masterworks as Be-Bop Deluxe's *Jets At Dawn*, Renaissance's *Black Flame*, and Traffic's *Dream Gerard*, some might question the inclusion of The Sensational Alex's Harvey Band's *Anthem*. Not that the latter isn't utterly brilliant, of course, but 1974's *Hot City Symphony Pt 2* would have been a much proggier SAHB selection, and there are other inclusions here which act as a reminder that compilations are partly bound by what's actually available, not only by what is apposite.

Many prog fans will already have parts of 'Round And Round' in their record collections, but the compilation's more obscure inclusions (check out the gonzo, Rhubarb & Custard-theme vibes of Refugee's *Ritt Mickley*, or the trippy *Flying* by South Wales band Quicksand, two of whom would later feature in Man and Alcatraz) often constitute buried treasure. Great, too, to hear how prog's rise impacted upon Italy's Premiata Forneria Marconi, who took their name from the bakery in which they rehearsed, and whose song *The World Became The World* pitches tent somewhere between early King Crimson and Pavlov's Dog.

At its best, 'Round And Round: Progressive Sounds Of 1974' lifts the lid on worlds a lot of people never knew existed, and Powell's potted-histories of each of the featured acts are fun to peruse while listening. Is there a 'Progressive Sounds Of 1975' on the way, or was that year less seismic?

James McNair

PETE TOWNSHEND • RONNIE LANE

Rough Mix (1977)
Empty Glass (1980)

A fine collaboration, and nice work away from the day job.

Between 1977's 'Rough Mix' and 1980's 'Empty Glass', a lot happened, and it shows. 'Rough Mix' was recorded when ex-Small Face and Face Ronnie Lane fancied collaborating with fellow mod rocker Pete Townshend, and the result is a fine collection of countryish songs filtered mostly through Lane's unique musical vision; it's topped off with a brilliant version of Don Williams's *Til The Rivers All Run Dry*. Some formats of this album include elements of brandy-soaked rambling, this vinyl half-speed master doesn't.

Three years later, and punk had not so much swept the country as hoovered and dusted the country and steam-cleaned the seat covers. The Who adjusted to the new wave with *Who Are You*, but the death of Keith Moon had sent the band into a hiatus interrupted only by retrospective projects. 'Empty Glass' was Townshend's response to all the above. There are songs about NME writers (*Jools And Jim*), songs about coping (*Keep On Working*), songs about love (*Let My Love Open The Door*) and songs Roger Daltrey wanted for The Who (*Rough Boys*). The result is an album full of superb songs that sounds modern (lots of synths and skinny-tie snappiness), feminine (the gorgeous *And I Moved*, a cousin to Angie's Townshend-written *Peppermint Lump*) and simultaneously resigned and furious.

The best thing any of The Who did in the 1980s, and well worth two of anyone's ears.

David Quantick

VARIOUS ARTISTS

28 Little Bangers From Richard Hawley's Jukebox

Imagine Richard Hawley invites you over to his gaff for an evening of tins and tabs. "I want to play you a few records," he says. This fine compilation, from the ever-reliable Ace Records, is probably what he'd have in mind.

From a lifetime of record collecting, lovingly recalled in his excellent sleeve notes, we get a mixture of the Nuggets-like garage of Art Guy's *Where You Gonna Go* and the serious twang of *Neb's Tune* by the marvellously named Ahab & The Wailers. There are a few recognisable names, such as The Troggs, The Shadows, Bobbie Gentry, and Jimi Hendrix who joins the swirling attack of Curtis Knight & The Squires' *Hornet's Nest*, but Hawley steers clear of obvious choices because there's no need for another compilation of the stuff we already know. The majority of the tracks are instrumental, but when things get as groovy as the big-band fuzz of *Swingin' & Surfin'* by Les Brown Jr. or *Tahiti* by Jimmy & Stan, who wants some singer getting in the way?

This collection is a gold mine. If my doctor told me that, due to some mystery ailment, I could only listen to Ace compilations for the rest of my days, I'd die happy enough. **Pat Carty**

MUD

The Singles 1973-80

The missing link between Showaddywaddy and Sweet, one tends to forget the terrific chart success Mud enjoyed in the 1970s. As part of the Nicky Chinn/Mike Chapman hit-making stable they were less glam rock, more ham-it-up rock, with cheesy dance routines to die for. Mud's top man was Les Gray — the Carshalton Elvis — who played the role of tiger-footed frontman with fun-lovin' aplomb. Gray, who sadly died in 2004, wore his Presley fanship on his sleeve — although when he left the building it wasn't Caesar's Palace, it was Bailey's nightclub in Watford.

This box set is organised in chronological A- and B-side order, which is a neat touch, and the booklet is designed like an edition of *Disco 45* magazine – it's a Day-Glo delight. And, of course, the hits — *Dyna-Mite* (originally written for Sweet), *The Cat Crept In*, *Lonely This Christmas*, *L'L'Lucy* (a fine non-Chinni-Chap composition) — just keep comin'. Let's raise a glass to the glories of the 1970s. Here's Mud in your eye. **Geoff Barton**

GETTY

THE BEACH BOYS *Pet Sounds (Dolby Atmos mix)*

Pet surrounds in online Giles Martin mix.

Of course, unimpeachable received wisdom insists that Pet Sounds is not only 'Brian Wilson's magnum opus', but is also 'widely regarded as one of the greatest albums of all time': the very best, according to *NME* ('93), *The Times* ('09) and *Uncut* ('16). But while it's a fine and impressive representation of what was fomenting inside the troubled mind of Brian Wilson (troubled mostly by what The Beatles had achieved on 'Rubber Soul') while the rest of the Beach Boys were off on tour, it's actually a bit of an evolutionary dead-end. Back at Abbey Road its arrival might have caused George Martin to exclaim: "Okay boys, hold my pint," but there were not (as with the Velvet Underground's first album) phalanxes of newly-inspired musicians queuing up to change the future in its wake.

Listening to the album today in this clarifying new Atmos mix from Giles Martin (on Apple Music, Amazon Music Unlimited and Tidal), it sounds like a curio from a bygone age. A brilliantly realised and divinely inspired curio, but a curio all the same. Its (originally mono) Wrecking-Crew'n'strings-kitchen-sink-included-wall-of-sound is clearly post-Spector, but rather than presaging rock's future it's ultimately überschmalt, hokey baroque, an overblown Wagnerian pop symphony with clichéd lyrics contrived by an ex-advertising agency jingle writer (Tony Asher, Brian's chosen wordsmith *du jour*'s previous career highlight had been a singularly pithy slogan for a leading toy manufacturer: 'You can tell it's Mattel… It's swell.') When it works (*God Only Knows*, *Wouldn't It Be Nice*), it works, but there's an entire wardrobe of emperor's new clothes at back of the hits: plink-ploink banjo (played by Glen Campbell, no less); bronx cheer bass harmonica parps; pro-percussionists dutifully clanking on Coke cans; acid evangelism; the genuinely creepy *Caroline, No*. (Released two months ahead of the album as a Brian Wilson solo single, Pet Sounds' closing track dolefully bemoans a partner's apparently relationship-threatening unilateral decision to get a haircut.)

Obviously, it's genius (of a sort), and vocally utterly on-point, but do we really need its shortcomings displayed quite so starkly in this new from-all-angles mix? Perhaps if we hadn't been here before, but in '03 Capitol released a 5.1-channel mix done for DVD-Audio by Mark Linett under Brian Wilson's supervision. Which seemed fine. That said, what was so terribly wrong with the original (universally adulated) mono mix in the first place? *Ian Fortnam*

Videodrome

THE ORGANIC TV

1983

'I felt kind of stupid when I was doing it,' said star James Woods of the scenes where Max Renn, the protagonist of 1983's *Videodrome*, gets up close and personal with his TeleRANGER TV screen. His 'stupid' is our disturbing and (whisper it) erotic, as a mesmerised Max approaches the televised lips of Nicki Brand (Blondie's Debbie Harry) and the screen begins to bulge outwards as she puckers, and then billows when she blows. 'Don't keep me waiting,' she murmurs, inviting Max to sink his flesh into her open mouth. This he does, meshing man and machine in a prescient horror movie that traverses the edges of reality and consciousness as it explores our fears and fascination with sex, violence and technology. Long live the new flesh, indeed.

Much of *Videodrome*'s appeal is in its ideas, with Canadian filmmaker David Cronenberg melding themes of right-wing conspiracy, S&M and human transformation/evolution as surely as Renn fuses with his gogglebox. But as TV programmer Renn stumbles upon a pirate transmission of hyperviolent torture show Videodrome while seeking shows for his sleazy cable TV station, Cronenberg's sixth feature also reveals itself to be one of the SFX showcases of 80s horror. It's less talked about in this regard than the director's 1986 hit *The Fly*, but *Videodrome*'s WTF creations, overseen by Rick Baker as he came off the back of winning an Oscar for *An American Werewolf in London*, continue to breathe life into a 40-year-old movie.

Baker and his team were responsible for Renn's abdominal slit, into which he inserts a Betamax tape to deepen the fusion of flesh and technology ('I am not an actor anymore, I'm just the bearer of the slit,' said a discomforted Woods, only half-joking). But it's the undulating TV that is the movie's *piece de resistance*, with various methods attempted to bring it to life.

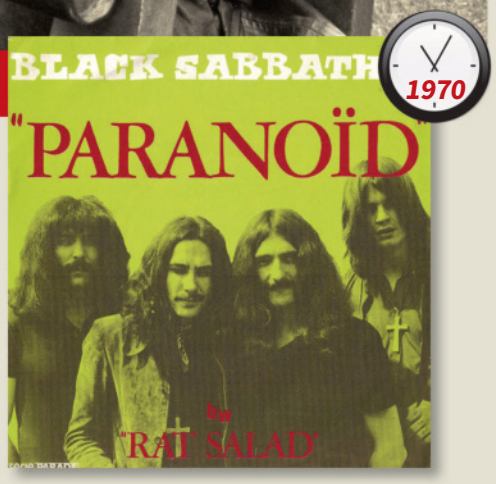
"We experimented with a weather balloon first, stretching it over a frame the size of a TV screen, and pushed a hand through to see how far it stretched, and then we rear-projected on it," Baker said. In the end, a dental dam provided the answer — "a stronger, stretchier kind of rubber,'"noted Baker — and it was coated with reflective white paint to best receive the projections.

The result is one of the most iconic televisions in horror, as memorable as the TV sets that act as deadly portals in *Poltergeist*, *Ringu* and *A Nightmare on Elm Street 3: Dream Warriors*. You might just say it's essential viewing.

JAMIE GRAHAM

PARK LIFE: Sabbath celebrate the success of Paranoid.

CLASSIC TRACK: Black Sabbath – *Paranoid*



The song that made Black Sabbath immortal began as an afterthought. It was June 1970, and the metallers from Birmingham in the UK had assumed their second album — tentatively titled 'War Pigs' — was in the can.

"Then the label suddenly said, 'You don't have enough songs,'" recalls guitarist Tony Iommi. "We didn't know what to do. Within a few minutes I came up with the riff to *Paranoid*, played it to the other guys and they liked it, so off we went. That's how simple *Paranoid* was — we wrote and recorded it in a day. We didn't want a hit single and we didn't expect it to be a single. We just did it as a filler track."

If Iommi's lean ascending lick was instantly memorable, Geezer Butler's rush-written lyric hardly suggested a crossover hit, the bassist supplying Ozzy Osbourne with a stormy diatribe whose unravelling narrator loses his woman and sees only despair in the world. When it came to the subject of mental health, Butler was no dilettante: the bassist would later tell of his history of self-harming with knives and pins ("It was the only thing that could get me out of it"), and examined the toxic relationship between paranoia and depression.

"I didn't really know the difference between [them]. It's a drug thing; when you're smoking a joint you get totally paranoid about people; you can't relate to people. There's that crossover between the paranoia you get when you're smoking dope and the depression afterwards."

The song's troubled subject matter aside, Butler argued that releasing *Paranoid* as a single was out of the question, given its similarity to Led Zeppelin's *Communication Breakdown*.

"When Tony came up with the riff," he says, "me and Ozzy spotted it immediately and went: 'Naw, we can't do that!' In fact we ended up having quite a big argument about it. Guess who was wrong?"

Once *Paranoid* pricked up the ears of label executives, the song's momentum was unstoppable: released in August 1970, it achieved Sabbath's career-best chart placing (No. 4 in the UK, No. 18 in the Australian Go-Set National Top 60), and prompted a name change for the album which drove that to an unprecedented UK No.1. None of which, it turned out, suited Iommi.

"The *Paranoid* single attracted screaming kids," he wrote in 1998's 'Reunion' sleevenotes. "We saw people dancing when we played it and we decided that we shouldn't do singles for a long while after that, to stay true to the fans who'd liked us before we'd become popular."

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